National Institute on Drug Abuse

2006 Summer Research With NIDA
for
Underrepresented Minority Students

"Providing students with valuable drug abuse research experiences"

NIDA
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ON DRUG ABUSE

NATIONAL INSTITUTES OF HEALTH

PROGRAM

Summer Research With the National Institute on Drug Abuse (NIDA) is a part of the Research Supplements for Underrepresented Minorities ("minority supplements") program. The minority supplements program encourages recipients to pursue careers in biomedical and behavioral research by providing them with opportunities to work with investigators in the field.

NIDA is pleased to announce the 10th annual Summer Research With NIDA Program. This program is designed to introduce high school and undergraduate underrepresented minority students to drug abuse research through research placements with some of our most distinguished scientists. Students work with the investigators for 8–10 weeks during the summer. The experience may include formal courses, participation in meetings, data collection activities, data analysis, laboratory experiments, manuscript preparation, and library research. The program exposes students to drug abuse research and encourages them to pursue careers in biomedical and behavioral research. Since the program's inception in 1997, more than 450 students have gained valuable drug abuse research experience, and more than 100 research sites have participated.

ELIGIBILITY

To be eligible for this program, applicants must be from a racial/ethnic background that is recognized as underrepresented in the fields of biomedical and behavioral science, including African Americans, Hispanics, American Indians/Alaska Natives, and Asian/Pacific Islanders. Applicants must be currently enrolled in high school or college and in good academic standing.

Applicants must be at least 15 years of age and **citizens or permanent residents of the United States (no exceptions)**. Applicants under 18 years of age can be placed only at research sites within daily commuting distance of their home.

SCOPE OF SUPPORT

Students will receive stipends for the summer based on the rate agreed upon with each research site, not to exceed $10.00 per hour for undergraduate students (for a maximum stipend of $4,000 for 10 weeks) and $8.00 per hour for high school students (for a maximum stipend of $3,200 for 10 weeks).

In cases where students are placed at distant sites, investigators can request up to $2,500 for travel and per diem expenses. Assistance can be provided to students for costs associated with lodging. Students may need to work with investigators to locate lodging. If lodging is available at the research site, it is indicated in the site description.

APPLICATION PROCEDURES

Please review the opportunities listed in this brochure under the sections for Social Sciences and Life Sciences, and read the complete project descriptions at http://www.drugabuse.gov/pdf/sposummer.pdf. After reviewing the descriptions, indicate on the application form the three sites that best meet your research interests or experience. Submit a complete application form along with a transcript, two letters of recommendation, and a brief statement of your research career interest by March 15, 2006. Please refer to the application form for mailing information and other details.

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2006 Summer Research With NIDA for Underrepresented Minorities Application Form

Personal Information

Name: | Date of Birth:

Current Address:

Current Phone:

E-Mail:

Permanent Address:

Permanent Phone:

Ethnicity: | Sex: ❑ Male ❑ Female

U.S. Citizen or Permanent Resident? yes ❑ no ❑

Academic Information

School Presently Attending:

❑ High School ❑ College/University | ❑ Fr. ❑ So. ❑ Jr. ❑ Sr.

Major: | Minor:

GPA for Major: | Cumulative GPA:

Site Selections

Openings for summer research projects appear in two categories: Social Sciences and Life Sciences. Provide your top three choices, by number, in order of preference.

[1] _____ [2] _____ [3] _____

Please visit www.drugabuse.gov/pdf/sposummer.pdf for complete project descriptions.

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Qualifications

Indicate your qualifications for the area of research you have chosen (Pay close attention to the **site's description and preferred student attributes**):

❑ I have read the project descriptions online and I meet the qualifications outlined in them.

Please Sign Here

Please attach the following items to this form:

1. **Transcript**. An unofficial transcript will be accepted initially; however, an official transcript must be submitted no later than March 15, 2006.
2. **Statement of Research Career Interest**. Submit a statement that describes your interest in drug abuse research, career plans, and educational plans beyond your undergraduate studies. Do not exceed one page.
3. **Two Letters of Recommendation**. Submit letters of recommendation from an advisor and/or your professors.

Applications must be received by March 15, 2006. Fax or mail applications to:

Flair Lindsey, Program Analyst
Special Populations Office
National Institute on Drug Abuse
6001 Executive Boulevard, Room 4216
MSC 9567
Bethesda, MD 20892-9567
(301) 443-0441 Office
(301) 480-8179 Fax
fl20t@nih.gov E-mail

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Social Sciences

Social Sciences

Ideal for, but not limited to, students with majors/interests in psychology, sociology, anthropology, behavioral research, health psychology, social work, psychiatry, public health, and counseling

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Investigator:	Charles P. O'Brien, Ph.D.
Institution:	University of Pennsylvania, Philadelphia, Pennsylvania
Research Area:	Psychiatry, Addictions
Project Title:	Treatment Research Center
Start Date, Program Length:	June 6, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with an interest in behavioral health sciences.

The program at the University of Pennsylvania has been designed to facilitate placements for undergraduate students who are not in close proximity to a participating NIDA grantee, high school students who are in close daily commuting proximity of a participating NIDA grantee, and students who need supervision beyond that available in the grantee's program. The University of Pennsylvania will provide daily supervision through monitored activities; secured dormitory housing accommodations; and through secured placement, positions supervised by professional and responsible investigators, junior investigators, and staff.

Research Site: As a current NIDA grantee, we will provide research placements for participating students. The program will be a 10-week, 40-hour-week placement, supervised by a principal investigator and designated program director. The program will include—

- Formal course work: Psychiatry 105 course work (didactics); Diagnosis and Treatment of Substance Abuse; MCAT and GRE Training classes (optional)
- Participation in meetings: weekly speaker sessions hosted by various investigators from the field
- Data collection activities and data analysis: Active research study preparation, including CRF work and assessments (may include patient contact)
- Laboratory experience/experiments; includes animal research
- Library research
- Group activities; includes mentor meetings and other group activities
- Final oral presentations

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Investigator:	Frances R. Levin, M.D.
Institution:	New York State Psychiatric Institute/Columbia University, New York, New York
Research Area:	Substance Abuse Clinical Trials
Project Title:	Marijuana Dependence and Depression: Venlafaxine Treatment
Start Date, Program Length:	June 12, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with an interest in either the social sciences (such as clinical psychology or social work) or a career in medicine or nursing. Specifically, an undergraduate with an interest in research or in the treatment of substance abuse disorders would benefit greatly from an internship at this facility. Participants will grow in knowledge and appreciation for what may be a potential career path. This site will, in turn, benefit from a continued commitment as a teaching facility by fostering and maintaining relationships with students who may work in our institution or a similar facility in the future.

The Substance Treatment and Research Service (STARS) of the New York State Psychiatric Institute and Columbia University is dedicated to developing and using the most effective treatments for substance abusers. STARS treats the physical, psychological, and psychiatric conditions associated with substance abuse. We currently have eight NIDA-funded ongoing treatment outcome research studies. We provide psychotherapy and pharmacotherapy for individuals with alcohol, heroin, marijuana, or cocaine problems. We also assess for the treatment of comorbid psychiatric disorders such as depression and anxiety, and we provide short-term inpatient and outpatient treatment. For more information, please access our Web site at www.starsnyc.org.

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Investigator:	Brian R. Edlin, Ph.D.
Institution:	Weill Medical College of Cornell University, New York, New York
Research Area:	Hepatitis C in Injection Drug Users
Project Title:	Acute Hepatitis C Virus Infection in Young Injection Drug Users
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students majoring in and/or having a strong background in the biological or social sciences with a strong interest in pursuing a career in drug addiction research, public health, infectious disease, and/or social work. Student must be willing to work in a collaborative, dynamic environment with a diverse study population and be able to work well individually and in groups.

The Center for the Study of Hepatitis C, established in 2000 at the Rockefeller University, Weill Medical College of Cornell University, and New York-Presbyterian Hospital, is the only comprehensive, multidisciplinary center dedicated to the study of HCV and hepatic disease in the tri-state area. In collaboration with the Center, Dr. Brian Edlin is currently running three federally funded research projects looking at acute and chronic hepatitis C infection and treatment in injection drug users (IDUs) recruited from a syringe exchange program in Manhattan. Responsibilities for a summer research intern assisting two project directors would include scheduling medical appointments for study participants, escorting study participants to medical visits, data entry, preparation of weekly data reports, assisting in the preparation of Institutional Review Board and grant documentation, and assistance with other study-related activities. Attendance and participation at weekly staff meetings and scientific seminars are expected.

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Investigator:	Cynthia Kuhn, Ph.D.
Institution:	Duke University Medical Center, Durham, North Carolina
Research Area:	Animal Models of Addiction in Adolescence
Project Title:	Animal Models of Adolescent Substance Abuse
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who are science majors (biology or chemistry) or psychology majors who are interested in how drugs affect the brain and the neurobiologic mechanisms of behavior. Qualified students must be willing to work with animals (mice or rats). Students who aspire to receive graduate training in biomedical research or medicine are preferred. Students should be rising juniors or seniors.

Duke University Medical Center offers opportunities in several different laboratories. Four laboratories are studying animal models relevant to addiction, and another conducts and develops substance abuse education programs. Three of the four animal laboratories are studying animal models of adolescent substance use. Dr. Kuhn's lab is studying the role of dopamine systems in adolescent addiction vulnerability, the contribution of individual and developmental differences in risk-taking, and how those factors contribute to addiction vulnerability. Dr. Levin's lab is studying adolescent nicotine self-administration. Dr. Swartzwelder's lab is studying the effects of THC, the main psychoactive compound in marijuana, on learning and memory in adolescent rats. Dr. Caron's lab is studying transgenic mouse models relevant to addiction. Dr. Schwartz-Bloom is conducting research on substance abuse education. Summer students will coordinate with the Duke SROP (Summer Research Opportunities) for minority students, with approximately 10–15 students working in a wide range of biomedical research laboratories.

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Investigator:	Nancy Petry, Ph.D.
Institution:	University of Connecticut Health Center, Farmington, Connecticut
Research Area:	Substance Abuse Treatment
Project Title:	Impulsivity in Addictive Disorders
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with an interest in experimental and/or clinical psychology and knowledge of basic statistics (required). Data entry and management experience preferred, but not required. Interviewing experience with patient populations also preferred, but can train as well.

The summer project will involve learning about behavioral treatments of addictive disorders. The student will participate in a project evaluating impulsivity in patients with addictive disorders, including collecting data and interviewing patients about substance use and psychosocial problems. The position will involve some data entry and management responsibilities. Opportunities for writing papers for publication will be possible, provided there is sufficient interest.

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Investigator:	Linda Dimeff, Ph.D.
Institution:	Behavioral Tech Research, Inc., Seattle, Washington
Research Area:	Training/Dissemination/Implementation of Evidence-Based Therapies
Project Title:	Computer-Based Training in DBT Behavioral Analysis; Computer-Based Training in DBT Validation Strategies; Computer Training in DBT-S Skills for BPD Drug Abusers
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students who have familiarity with the Microsoft Office programs (e.g., WORD, Excel, PowerPoint, Outlook) and have a keen interest in behavioral sciences and a desire to work in one of our core areas of research: training/dissemination, DBT, use of technology as a training and performance tool in adult education.

We are offering a very full, rich research opportunity to a small number of highly motivated students who are interested in—

- Learning Dialectical Behavior Therapy (DBT) and standard behavior therapy strategies
- Leveraging technology (i.e., E-learning and other computer-based training) for training treatment providers to competence in routine treatment settings
- Conducting qualitative research during the development of E-learning courses
- Blending traditional instructor-led training methods with computer-based training
- Learning one of the "hottest" areas of research in psychology: dissemination and implementation of evidence-based therapies

Students will also have an opportunity to learn the basics of research methods, data collection, data management, compliance issues related to working with human subjects, and methods to train treatment providers in evidence-based therapies (i.e., psychotherapeutic treatments that have data showing they work).

Students will participate in a seminar teaching the following topics:

- What are evidence-based therapies and how do they matter?
- Why does bridge building (from science to practice) matter, what's been tried, and what seems to work best? (focus on issues involved in dissemination and implementation of research)
- What is DBT? (an overview)
- What are the DBT Skills? (e.g., mindfulness, emotion regulation, distress tolerance, interpersonal effectiveness)
- Research methods used in conducting formative and summative research using qualitative and quantitative methods while conducting efficacy, effectiveness, and hybrid research

Continued

- Approaches to developing computer-based training/E-learning for adult education

Behavioral Tech Research Inc. is a small, free-standing research institute in the University District in Seattle, Washington, minutes by foot from the University of Washington. We are dedicated to improving the competence of treatment providers who treat complex and severe mental disorders through rigorous training in evidence-based therapies. Our sister organization Behavioral Tech, LLC, is the premier training organization in DBT throughout the world. More information about our organizations can be found at www.behavioraltech.org.

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Investigator:	Robert P. Schwartz, M.D.
Institution:	Friends Research Institute, Social Research Center, Baltimore, Maryland
Research Area:	Entry and Engagement in Drug Abuse Treatment
Project Title:	Entry and Engagement in Methadone Maintenance Treatment
Start Date, Program Length:	June 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with background knowledge in research design and methods and statistical analysis. Students will assist in data collection activities, data analysis, manuscript preparation, and other enrichment activities.

The majority of individuals in need of drug abuse treatment remain untreated, and a sizeable proportion of drug abusers who enter treatment exit after a brief tenure. Research that contributes toward an understanding of drug abusers' entry and engagement in drug abuse treatment and the subsequent outcomes is critical to efforts to improve treatment. Given the threat of HIV infection, improving treatment entry and engagement is particularly important for opioid addicts (who are at especially high risk for HIV infection) and methadone maintenance treatment, which is widely used for the treatment of opioid dependence.

A 5-year services research study is being undertaken to comprehensively examine treatment entry and engagement, using a biopsychosocial theoretical perspective to guide the investigation. Informed by this perspective, the study examines three domains—namely, personal characteristics, treatment attributes, and environmental influences—that are hypothesized to affect opioid addicts' motivation to change and motivation for treatment, their entry into and subsequent engagement in methadone maintenance treatment, and ultimately their recovery.

Within each of these domains, the effects of specific, potentially relevant variables, selected on the basis of previous research and theory, are being examined. Two groups of adult opioid addicts are being studied: addicts who have not recently received and are not interested in seeking treatment (N=200) and opioid addicts newly admitted to methadone maintenance treatment (N=400). Both groups are involved in the examination of treatment entry, and the admission group alone is involved in the examination of treatment engagement. Comprehensive assessments are being conducted at baseline and 3 months (the 3-month assessment involving only the admission group to study their initial engagement in treatment), and 6 and 12 months thereafter.

Two separate but complementary structural equation models are posited to predict: (1) treatment entry and (2) treatment engagement and outcomes. These models, along with hypothesized components of these models, will be tested using structural equation modeling techniques, including the comparison of hypothesized models with plausible alternate models. While the primary study approach is quantitative, a strong qualitative research component is also included to provide for in-depth examination of motivation to change and motivation for treatment, and of other variables that emerge in the quantitative research as being important for understanding treatment entry and engagement.

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Investigator:	Linda Cottler, Ph.D.
Institution:	Washington University, St. Louis, Missouri
Research Area:	Psychiatric Epidemiology
Project Title:	Consequences of Drug Use, Abuse, and Dependence
Start Date, Program Length:	June 12, 2006 — 8 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students interested in addictive behavior and in the social context of that behavior, who are encouraged to consider this research experience, regardless of major. Students with a special interest in drug addictions, psychiatric problems, comorbidity, and HIV prevention are encouraged to apply. Position requires professional attitude towards internship, including commitment to work a 40-hour week during regular business hours. The student should have an understanding of literature searches with library internet databases. This is applied research with real people, and dependability, reliability, and confidentiality are critical. Students would benefit from previous exposure to survey methods and statistics, but previous experience is not required. Students with an interest in understanding and preventing common life problems will find this a challenging and rewarding opportunity to learn both the substance and process of the research enterprise.

Busy psychiatric epidemiology research office is involved in many different projects, all involving persons who use a variety of drugs and alcohol and who may have mental health problems. Projects include an HIV-prevention intervention for women and an investigation into MDMA use. Projects offer a global perspective, with studies in the United States, India, and Taiwan. Dr. Cottler is a nationally known investigator in the epidemiology of addictive substances, risk behavior, and co-occurring mental illness.

Students will be exposed to state-of-the-art diagnostic assessments developed in this office and their use in a variety of populations. Computerized interviewing techniques are used, and students will have a chance to familiarize themselves with the diagnostic interviews through data entry. Students will be involved with others in the office in some data analysis. This program is especially strong in methodology, and students will be exposed to the many areas in research where methodological quality must be created and maintained. Students will have some clerical duties initiating them into the research process. Students will also have an opportunity to gain an understanding of the ethical issues and complexities of research involving human subjects. Dr. Cottler's office is located in a busy urban area near the medical school campus.

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Investigator:	James L. Sorensen, Ph.D.
Institution:	University of California, San Francisco, California
Research Area:	Drug Abuse Treatment Outcome Research
Project Title:	California-Arizona Node, NIDA Clinical Trials Network
Start Date, Program Length:	May 23, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking high school students with some interest in conducting scientific research. Ideally, the high school applicants should have conducted, or would like to conduct, research in high school, such as a small project in the local science fair. Students should also be prepared to spend their time in a culturally and economically diverse environment. An interest in the helping professions, such as medicine, psychology, social work, law, or counseling, would be desirable. The ideal candidates should also have the goal of gaining acceptance to a national research university.

The California-Arizona Node of the NIDA Clinical Trials Network is based at San Francisco General Hospital (SFGH), a hospital of the University of California, San Francisco (UCSF). Working in the Mission District, students will have contact with a culturally and economically diverse group of patients and research participants. Studies are conducted at research clinics that are part of the SFGH Division of Substance Abuse and Addiction Medicine. The SFGH Division of Substance Abuse and Addiction Medicine has conducted numerous research projects for over 29 years. Many of the research faculty are also affiliated with the NIDA-funded San Francisco Treatment Research Center at UCSF and the NIDA postdoctoral training program in substance abuse research. Students will be able to participate in a variety of research activities.

The California-Arizona Node is involved in conducting high-quality, multisite clinical trials of interventions for substance abuse. During the summer, the California-Arizona Node will also sponsor a dissemination conference. Research studies are restricted to human participants; there are no laboratory or bench science studies at the SFGH Division of Substance Abuse and Addiction Medicine. Students interested in psychological and social issues will find studying at the California-Arizona Node appealing. Many faculty and research staff are members of underrepresented minority groups. Several substance abuse research studies are conducted at UCSF in addition to the clinical trials that are part of the Clinical Trials Network.

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Investigator:	Rumi Kato Price, Ph.D., M.P.E.
Institution:	Washington University, School of Medicine, St. Louis, Missouri
Research Area:	Substance Abuse, Population Epidemiology, Comorbidity, Human Genome Epidemiology
Project Title:	Disentangling Substance Abuse and Psychiatric Disorder Comorbidity for Future Human Genome Epidemiology
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students with some background in genetics (AP biology), social science, and/or psychology.

There is an increasing public health need to integrate human genome information with analyses of population epidemiologic data to provide better understanding of biology-environment mechanisms underlying substance use and psychiatric disorders. The study's main objective is to provide informative results for future human genome epidemiology aspects of NESARC (National Epidemiologic Survey on Alcohol and Related Conditions) in anticipation of the availability of several types of genome data in future NESARC data collection. We propose to conduct analyses of several existing national longitudinal surveys, each with different strengths and weaknesses.

A major strength of analyzing all these surveys is the availability of large sample size to allow increased precision to examine ethnic–subgroup differences. We conceptualize race/ethnicity, gender, immigration and acculturation, and family history as key markers for the interplay of both genetic and environmental factors. Our main task is to incorporate a perspective of evolutionary genetics as it relates to race/ethnicity and population dynamics (immigration) into analyses that will include both genetic and environmental factors as applied to the general U.S. population database. The main phenotypes of interests are relatively common psychiatric and substance use disorders or syndromes.

In addition to this study, the laboratory is pursuing several projects related to psychiatric and substance abuse comorbidity. These studies include biological as well as phenomenological information from longitudinal and cross-sectional samples. Summer interns can be assigned to a study that best matches their potential, research interests, and past experiences.

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Investigator:	Lillian Gelberg, M.D., M.P.H.
Institution:	University of California, Los Angeles, Los Angeles, California
Research Area:	Vulnerable Populations
Project Title:	Homeless Women: Drugs, Race/Ethnicity, and Health Care
Start Date, Program Length:	June 20, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduates whose experience reflects a commitment to underserved populations. Students should have interest in epidemiology and health services research (preferred, not required). A student's major can include public health, public policy, premedical coursework, and biological or physiological sciences. Knowledge of statistical programs such as SAS or STATA is preferred. Some experience in data collection also preferred but not required.

Students will work with a team of public health professors and clinical social scientists on research related to the health and service use of severely underserved health populations in Los Angeles County. Our research focuses primarily on behavioral social science. Students will be exposed to the entire research process: data collection, data management, and descriptive data analysis. Students will be required to go into the field with a team of social scientists to collect data in clinic-based settings. They will be exposed to qualitative observational fieldwork and quantitative survey research. Students may also be required to participate in medical record reviews in clinic-based settings and conduct literature reviews. Students will use database programs such as SAS (Statistical Analysis System) to store information collected in the field. Time permitting, students may also have the opportunity to conduct descriptive data analysis with data they collect in the field. To summarize, students will be exposed to original data collection on health issues related to underserved populations in one of the largest urban areas of the country

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Investigator:	Ken Dodge, Ph.D.; Phil Costanzo, Ph.D.
Institution:	Duke University, Durham, North Carolina
Research Area:	Prevention of Adolescent Substance Abuse
Project Title:	Duke Transdisciplinary Prevention Research Center
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with an interest in behavioral and social sciences as applied to adolescents, education, and drug policies. Individuals wanting to go further in their studies are preferred as are those with some experience in independent study at their home institution. It would be useful, but not necessary, to have basic computer skills and experience with data entry.

The Duke Transdisciplinary Prevention Research Center was funded by NIDA to bring together nationally recognized researchers from multiple disciplines to conduct empirical studies of adolescent social processes related to drug use and to design and test innovative drug prevention programs for adolescents. There are three research programs within the Center including Intrapersonal Social Cognition and Self-Regulation, Interpersonal Processes and Peer Influence, and Institutional Peer Effects (see fact sheets).

The Center's research efforts are based on previous findings indicating adolescents at risk for initiating drug use are highly susceptible to peer influence and are guided by an evolving transactional model of how drug use evolves during adolescence. This model acknowledges child temperament, family disadvantage, and parenting style as early risk factors for later problems involving substance use but places the greatest emphasis on (1) the biological vulnerability of the adolescent brain and (2) adolescent peer-influence processes. Current research at the Center draws on adolescents from public schools, juvenile courts, and clinics that serve teenagers.

Students with interests and skills in the social or life sciences would receive the greatest benefit from collaborating in research at the Center. Interns will work closely with a mentor on a project related to their interests, attend a weekly seminar series, and have opportunities to participate in other studies and prevention efforts throughout the Center. They will receive training in data collection management, data analysis, and the presentation of research. This site is one of three sponsored by the professional organization Society for Prevention Research (SPR). Interns involved with an SPR site may have an opportunity to begin their internship by attending the annual SPR conference held this year in San Antonio, Texas (May 31–June 2, 2006). This is an exciting opportunity to learn from and meet leading researchers in prevention science. For more information about the Center see www.childandfamilypolicy.duke.edu/prevention.html.

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Investigator:	F. Joseph McClernon, Ph.D.
Institution:	Duke University Medical Center, Durham, North Carolina
Research Area:	Clinical Neuroscience
Project Title:	Using Neuroimaging to Understand Drug Addiction
Start Date, Program Length:	June 6, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with a background in any of the sciences (must have an interest in neuroscience/psychology) as this research is interdisciplinary. A solid background in mathematics is also preferred. Students must have excellent computer and communication skills.

Are you interested in doing research exploring the effects of drug addiction on the brain? At the Tobacco Neuroscience Research Laboratory at Duke University Medical Center, we are using brain imaging techniques (fMRI) to research the effects of quitting smoking on brain functioning and smokers' reactions to drug cues. This research is important for understanding addiction and developing new ways to help people quit smoking. Summer students will learn about brain imaging research, assist with human data collection, and help with data processing and analysis. Candidates for our program must enjoy working with people and have excellent computer skills. An interest in the brain and/or neuroscience is required. For more information, call Dr. Joe McClernon at 919-668-3987 or visit www.duke.edu/~fjm3.

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Investigator:	Charles Martinez, Jr., Ph.D.
Institution:	Oregon Social Learning Center, Eugene, Oregon
Research Area:	Behavioral Neuroscience
Project Title:	Cellular Mechanisms of Opioid Tolerance
Start Date, Program Length:	June 19, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students who display an interest in the following: social sciences and prevention research; culturally relevant research and intervention; psychology; health promotion; social services, community base building, advocacy, and leadership. Bilingualism in Spanish and English is helpful, though not required.

This study is a project of ongoing collaboration between the Oregon Social Learning Center (OSLC) Latino Research Team and many agencies and organizations in western Oregon. The study is designed to address significant gaps in prevention science regarding experiences and challenges faced by recently immigrated Latino families with middle-school youngsters at risk for substance use and related problems. Our project is based on a community empowerment model and involves active collaboration and partnership in addressing project goals.

The project aims to (1) examine the direct effects over time of acculturation processes, social contexts, and social support processes on family environment, parenting practices, and youth substance use and related problems for immigrant Latino families; (2) examine the direct and interactive effects of years in U.S. residency on the relationship between acculturation processes and the development of youngster substance use and related problems for immigrant Latino families; and (3) test an integrative theoretical model based on social interaction learning theory that specifies mediating effects of family environment and parenting practices on the relationships between macro- and exo-system factors (i.e., acculturation processes, social contexts, social support processes) and substance use and related problems for immigrant Latino youth and their families.

Interns with the Acculturation project will be integrated into every facet of the ongoing work. After receiving the standard OSLC human subjects training, interns will join in the recruitment of participants, assessment activities, data management, data analysis, and other activities. Interns will be expected to conduct individual or group research in an area related to multiculturalism and will present their findings to the Latino Research Team and others at OSLC and in the community. Interns will be expected to attend daily meetings with their mentors as well as weekly staff meetings. To give students insight into the functions of a large private research institute, they will also be encouraged to attend OSLC and community activities such as presentations by other investigators, classes at the University of Oregon regarding cultural diversity, community events, and presentations by visiting scholars.

This site is one of four sponsored by the Society for Prevention Research (SPR). Interns involved with an SPR site may have an opportunity to begin their internship by attending the annual SPR conference in San Antonio, Texas. This is an opportunity to meet and learn from leading researchers in prevention science.

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Investigator:	Dorothy C. Browne, Ph.D.
Institution:	Morgan State University, Baltimore, Maryland
Research Area:	Drug Use Among Adolescent and Adult Cultural and Ethnic Groups
Project Title:	Center for the Study and Prevention of Drug Use
Start Date, Program Length:	May, 30, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who intend to pursue graduate degrees in disciplines that study drug use (psychology—developmental and experimental), social work, sociology, health education, and related areas. Students should have taken at least one course in statistics and research methodology.

This program is designed to introduce undergraduate, underrepresented minority students to drug abuse research through placements with experienced, NIDA-funded researchers. The program aims to encourage students to pursue careers in biomedical and behavioral research. Students receive stipends, housing, and meals for their participation in the 10-week summer program.

As part of the student's program he/she will develop research skills through involvement in a variety of activities, such as data collection and/or analyses. The student will also develop a general understanding of the research process by completing readings and training related to a variety of issues, such as research ethics and measurement issues, and by attending presentations given by faculty and Center staff.

A central component of the program is involvement in the development of one research manuscript in collaboration with colleagues at the Drug Abuse Research Program. The student works with one other student to complete a research paper with the goal of submitting this paper to a journal for publication. A menu of potential paper topics is represented to the student during the first week of the program. After choosing his or her project, the student works with program staff and faculty to complete all components of this project, which results in a paper submitted to an appropriate peer-review journal.

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Investigator:	Lisa Dierker, Ph.D.
Institution:	Wesleyan University, Middletown, Connecticut
Research Area:	Etiology of Substance Dependence
Project Title:	Uncovering Multiple Pathways to Substance Use Disorders
Start Date, Program Length:	June 5, 2006 — 9 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with an interest in behavioral research and some experience with or interest in statistics.

This research program uses previously collected data to answer questions regarding the development of substance abuse and dependence among adolescents and young adults. The research goals are specifically aimed to—

- Distinguish between substance use behaviors leading to abuse and dependence vs. less severe levels of use.
- Identify prominent and unique risk pathways that predict the most severe substance use outcomes.
- Evaluate the potential for reduction of substance abuse and dependence through targeted interventions.

Students will receive training and mentorship in conducting library research and literature reviews, managing data, performing statistical analyses, and preparing manuscripts and conference presentations. In addition to this hands-on research experience focused on substance use, Wesleyan University has an extensive summer research infrastructure that provides students with opportunities to participate in a variety of scientific workshops. Topics of these workshops include using graphics and presentation software packages, resumes and career discussions, writing and critiquing abstracts, and preparing poster presentations. There is also a summer seminar series given by outside speakers on topics valuable to an undergraduate audience of varying scientific backgrounds and fields. For a list of past summer series talks go to http://www.wesleyan.edu/hughes/seminars_05.htm.

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Investigator:	Linda C. Mayes, M.D.
Institution:	Yale Child Study Center, New Haven, Connecticut
Research Area:	Impact of Prenatal Cocaine Exposure on Children's Attention and Emotional Regulatory Capacities
Project Title:	Arousal and Attention in Cocaine-Exposed Children
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interest in studies of children and child development, a psychology or neuroscience major, and an expressed interest in behavioral research and/or need for a senior research project.

This project is engaged in a longitudinal study of a cohort of prenatally cocaine-exposed children, the oldest of whom is now 12 years old. Children are seen twice per year for detailed behavioral, neuropsychological, and neurophysiological studies. Students interning in our laboratory have the opportunity to learn about neuropsychological testing, the neurophysiology of the acoustic startle response, and event-related potential using a new method based on high-density event-related potential techniques. Students are also exposed to basic database management and data analysis techniques. Past summer interns have been able to work on manuscripts and posters for national meetings.

18

Investigator:	Kathryn A. Cunningham, Ph.D.
Institution:	University of Texas Medical Branch, Galveston, Texas
Research Area:	Neurobiology of Psychostimulants
Project Title:	Neurobehavioral Pharmacology of Stimulants
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with a background in neuroscience, psychology, pharmacology, or behavioral science. Students should have a strong understanding of the importance of animal research to advancing our understanding of addiction and in exploring new ways to treat addiction. While it is not necessary for a student to handle rats for the conduct of their project, the laboratory environment will entail exposure to rodent research.

This project's goals are to uncover the mechanisms underlying drug-seeking behavior in order to characterize the biomolecular profile of addiction and to uncover the path to designing new diagnostic and therapeutic approaches to addiction. Some of the questions of interest are provided below:

- Is vulnerability to addiction associated with a specific protein profile in rat brain or serum, and can this knowledge be exploited to develop new prevention and diagnostic strategies?
- Is chronic stimulant exposure (cocaine or MDMA—"ecstasy") associated with identifiable patterns of protein expression that may predict severity of addiction and help to design individualized treatment protocols?
- What are the roles of dopamine (DA) and serotonin (5-HT) receptors in the expression of molecular and behavioral effects of psychoactive drugs?
- What are the regulatory processes for 5-HT systems in the brain? How do dopamine and 5-HT interact? How might altered regulation of 5-HT systems contribute to psychosis, depression, and other affective disorders?
- What is the role of female steroid hormones in the regulation of neurotransmission? How does the steroid–5-HT interrelationship determine the neural response to antidepressants or abused drugs?
- Can we develop new models to study the role of 5-HT in normal behavior and under the influence of abused drugs?

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Investigator:	Jane Dimmitt Champion, Ph.D., R.N.
Institution:	University of Texas Health Science Center, San Antonio, Texas
Research Area:	Substance Use, Abuse, and STI in Adolescents
Project Title:	Behavioral Interventions for Minority Adolescents
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with one of the following majors: psychology, sociology, health careers, anthropology.

This research concerns African- and Mexican-American adolescent women who have a history of interpersonal violence and sexually transmitted diseases and substance use. The funded R01 is a controlled-randomized trial of an intervention for reduction of violence, substance use, sexually transmitted diseases, and unintended pregnancy among these women. The behavioral intervention includes workshops, support groups, and individual counseling. The followup period is for 1 year and is currently in progress.

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Investigator:	Bradley S. Peterson, M.D.
Institution:	New York State Psychiatric Institute, New York, New York
Research Area:	Child and Adolescent Psychiatry; Applying Neuroimaging To Study Brain Behavior Associations in Normal and Abnormal Development
Project Title:	MRI of Infants Exposed Prenatally to Drugs of Abuse
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with the ability to work with women, families, and healthcare professionals of diverse backgrounds. Students should have an interest in working with women and underserved communities and issues related to drug use and addiction. Students should be majoring in psychology, social work, education, or social science.

The Behavior and Brain Infant Evaluation Study (BABIES) incorporates magnetic resonance imaging (MRI) and neuropsychological measures to investigate possible effects of maternal drug use on infant brain and behavioral development. The target population is infants who have been exposed to cocaine, marijuana, methadone, or methamphetamine in utero or had no such exposure.

This study is based at Columbia University Medical Center and the New York State Psychiatric Institute. Pregnant women aged 18–45 are recruited through local hospital OB clinics, city-wide drug treatment programs, and other community-based organizations. Mothers participate in clinical interviews and neuropsychological testing before delivery and at 9, 12, 18, 24, and 36 months. Access to perinatal care and culturally sensitive support services for the family are provided throughout the mother's and child's enrollment through a family-liaison team. As a further incentive, participants receive Toys-R-Us gift certificates ranging from $60 to $120 at each visit.

Given the vulnerable subject population and level of community involvement demanded of participant recruitment and retention, this research program involves behavioral work requiring students with strong interests and skills in the social and life sciences.

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Investigator:	Adeline Nyamathi, Ph.D., R.N.
Institution:	University of California Los Angeles, Los Angeles, California
Research Area:	Hepatitis/HIV Prevention
Project Title:	HBV Prevention for Homeless At-Risk for HBV/HIV/HCV
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with an interest in behavioral work. Students majoring in nursing, psychology, sociology, or public heath are acceptable.

This research program utilized a 3-group quasi-experimental design to evaluate the effectiveness of a theoretically based HAV/HBV vaccination intervention with homeless men and women in the Skid Row area of Los Angeles. The primary focus is on completion of the combined Twinrix HAV/HBV vaccination series; secondly on risk reduction of HAV, HBV, HCV, and HIV; and thirdly on data collection of the relative cost of each of these programs related to HAV/HBV vaccination completion, the cost-effectiveness of improving vaccination completion, the cost per seroprotected case, and the cost per infection prevented. Once determined eligible, participants are randomized by area into one of the three programs: Nurse Care Managed Plus Incentive and Tracking (NCMIT) program, Standard Plus Incentive and Tracking (SIT) program, or a Standard with Incentive (SI) program. This research program is innovative in that the comparison of the SI, SIT, and NCMIT programs enables the laboratory to look at the effect of a standard intervention combining brief education and incentives with and without tracking with that of a similar intervention that also includes nurse case management on completion of the HAV/HBV vaccination.

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Investigator:	Nicholas Goeders, Ph.D.
Institution:	Louisiana State University, Shreveport, Louisiana
Research Area:	Animal Models of Drug Addiction; Stress and Drug Addiction; Adolescent Drug Exposure
Project Title:	Stress and Drug Addiction
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students majoring (or having extensive coursework) in psychology, neuroscience, or biology. At least one college-level course in general biology and chemistry is desired. Previous experience in a research laboratory or in laboratory-based classes will be helpful. Students must be willing and able to work with rodents.

Students will be involved in laboratory-based rodent experiments on the behavioral, neurochemical, and physiological consequences of exposure to psychostimulants and opioids. Behavioral approaches included measure of drug reinforcement, anxiety behavior, nociception and pain, and learning and memory. Opportunities will be available for the evaluation of neurochemical, hormone, and protein changes as a consequence of drug exposure using a wide variety of techniques, including HPLC, ELISA, radioimmunoassay, and Western blot. Laboratory work will be supplemented by a weekly journal club that discusses recent research findings in the field. Students will also participate in a weekly career development program that features discussions on research ethics, careers in science, graduate education, data presentation, and writing skills. Regular social opportunities will also be provided for students.

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Investigator:	Richard T. Spence, Ph.D.
Institution:	University of Texas at Austin, Austin, Texas
Research Area:	Substance Abuse
Project Title:	Research Program on Drug Abuse Intervention and Services for African and Mexican Americans
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with a major in social work or psychology and having an interest in any of the aforementioned areas of substance abuse with regard to underserved populations. Previous coursework in research methodology is required. Some experience conducting research with human subjects, such as interviewing or recruiting for study, is preferred. Seeking an undergraduate student who will be a senior during the 2006–2007 school year.

The Substance Abuse Research Development Program (RDP) is the first program at a public university in the country to be funded as part of a NIDA initiative to stimulate the development of federally funded social work research on substance abuse. The RDP focuses specifically on substance abuse among underserved populations (particularly African- and Mexican-Americans) and emphasizes factors at the individual, family, organizational, societal, and cultural levels that influence substance abuse and substance abuse treatment.

The 5-year (2001–2006), $2 million RDP involves both research and training activities to develop substance abuse research among faculty and students in the School of Social Work and related disciplines. The RDP, housed in the School of Social Work Research at the University of Texas at Austin (UT/Austin), includes—

- Funding of pilot studies, with mentoring by senior researchers and consultants to help faculty with the goal of developing larger-scale federally funded projects. Faculty interests include drug abuse in the criminal justice system, the aged, runaway youth, populations on the Texas-Mexico border, the role of spirituality, domestic violence, and more.
- Support of faculty who are ready to make an application to NIDA or other appropriate funding agency. This activity includes mentoring by senior researchers and consultants. It also includes helping faculty to prepare the application for approval by the University of Texas Office of Sponsored Projects and compiling the information to meet Federal application specifications.
- An ongoing seminar/workshop series also provides state-of-the-art information regarding research methods, grant writing, and findings of current research in the field of substance abuse and underserved groups. Often, featured speakers have the same research interests as UT/Austin faculty writing grant applications.
- Two $3,000 dissertation stipends are awarded yearly to doctoral students whose concept papers meet specific criteria. Papers are reviewed by School of Social Work faculty and other University Schools, such as Nursing.

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Investigator:	Kimberly C. Kirby, Ph.D.
Institution:	Treatment Research Institute, Philadelphia, Pennsylvania
Research Area:	Behavioral Interventions
Project Title:	A Behavioral Model for Maintenance of Drug Abstinence
Start Date, Program Length:	June 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with an interest in psychology, public health, or a related field. Students should be interested in gaining understanding and experience with the research process. Students should be comfortable relating to individuals from a wide variety of ethnic and income groups. Student should have an outgoing and assertive personality.

The Treatment Research Institute (TRI) is a not-for-profit organization dedicated to reducing the devastating effects of alcohol and other drug abuse on individuals, families, and communities by employing scientific methods and disseminating evidence-based information. Dr. A. Thomas McLellan is among the most internationally respected scientists in the area of drug abuse and its treatments. TRI has systematic programs of research addressing the integration of mainstream health care and addictions, prevention of drug abuse, legal and ethical issues in drug treatment, treatment information systems, and behavioral interventions.

This training experience would occur within the Behavior Interventions section of TRI, under the supervision of Dr. Kimberly C. Kirby, an expert in behavioral treatments of substance abuse. The Behavioral Interventions section is dedicated to taking behavioral interventions that have evidence of effectiveness in research settings and using rigorous scientific methods to develop, adapt, and improve them so they are effective and acceptable to clients, their families, and the community. Current projects include developing and understanding treatments to help concerned significant others deal with their drug abusing loved one, to integrate religious communities into behavioral treatments for cocaine addiction, and to provide incentives to initiate drug abstinence during treatment and maintain it for long periods of time.

Trainees would work directly with individuals suffering from addictions, collecting data for studies, and assisting with administering an incentive intervention. They would be actively involved in research meetings, data management, and library research. Opportunities would exist for attending scientific presentations by researchers at TRI, the University of Pennsylvania, and other outside institutions.

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Investigator:	Eloise Dunlap, Ph.D.
Institution:	National Development and Research, New York, New York
Research Area:	Family
Project Title:	Transient Domesticity and Violence in Distressed Household
Start Date, Program Length:	July 5, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school students who have excellent grades in all subjects with strong letters of support from their academic teachers/advisors. Students must relate their interest in writing in regard to learning about research and their interest in learning about such social problems as addiction, the impact of drugs on family life, minority families, poverty, violence, deviance, crime, and criminality. Students must have knowledge of computers and a good handle on using software programs, especially Word for Windows. Students should have good writing skills and working knowledge of using library and internet resources.

The objective of this study is to examine the structure and function of inner-city households when drug use and/or sales are present. This project will document how changes in mates among poor persons, especially those using illegal drugs, impact on household and family life. The study also examines violence in relationships, causes and consequences. Currently, confidential interviews are being conducted with several persons concerning male-female relations, household formation, and family life. The study's goal is to inform policymakers and those who allocate public and private funds and other resources about the often hidden and poorly documented stresses on poor inner-city families. In-depth interviews and observations are used to describe normative patterns; observations will help to develop typologies, processes, and the social context in which family life takes place. Interviews are open-ended, in-depth, and audiotaped. Ethnographic field observations complement the self-report interview data.

Three high school students will be closely mentored by experienced project staff to achieve the necessary skills and understanding of advanced behavioral research. The students will have an assortment of research-related tasks to perform. They will have the opportunity to work directly with research data, learning how to enter and code data into advanced databases. The students will learn to operate highly sophisticated programs such as SPSS, Filemaker Pro, Microsoft Excel, and Power Point. They will also have the opportunity to work on manuscripts for publication through library and internet searches and careful checking of references. They will acquire experience not only in the preparation of manuscripts for publication, but also in the formulation and preparation of the research findings to be presented at scientific meetings.

Students will be required to attend certain NDRI seminars and/or Training Institute courses where they will learn about drug use, HIV/AIDS, and a number of problems. (See http://training.ndri.org/ for more information.) The goal of the program is to provide both specific research skills and an overall understanding of research project components and

Continued

management. Biweekly seminars will provide students with comprehensive understanding of ongoing research and the various modes of investigation (qualitative, quantitative), tools needed, instrumentation, and theoretical background that guides particular research, and why.

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Investigator:	Sherry Deren, Ph.D.
Institution:	National Development and Research Institutes, Inc., New York, New York
Research Area:	Drug Use and HIV
Project Title:	High-Risk Drug Use and HIV: Learning From the NYC Epidemic
Start Date, Program Length:	July 5, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with an interest in the social sciences and experience or interest in work related to HIV, infectious diseases, or substance use. Skills related to literature searches and data management helpful.

This grant provides a research infrastructure for over 20 sociobehavioral research projects related to HIV and drug users. The Center focuses on advancing knowledge regarding social level and other influences on HIV-related risk behavior, prevention, and transmission, and is organized into six cores: Administration Core, International Research Core, Research Methods Core, Social Theory Core, Statistics and Data Analysis Core, and a Training and Dissemination Core. The Center provides this infrastructure for a diverse group of investigators (e.g., psychologists, sociologists, anthropologists, epidemiologists, statisticians) and a wide range of projects, including HIV surveillance studies of high-risk drug users, an exploratory project focused on HIV risk among adolescents, an intervention for migrant Puerto Rican drug users, and an intervention to enhance provision of hepatitis C services to clients in drug treatment programs.

Students participating in the Summer Research with NIDA Program at CDUHR will assist in various aspects of Center activities and in conducting its current projects, including work on research data with database software, the internet, and library research. The students will be closely mentored by experienced project staff in order to obtain the necessary skills and understanding of advanced behavioral research.

Students will be required to attend certain NDRI seminars and/or training institute courses where they will learn about drug use, HIV/AIDS, and a number of social problems. (See http://training.ndri.org/ for more information.) The goal of the program is to provide both specific research skills and an overall understanding of research project components and management. Biweekly seminars will provide students with comprehensive understanding of ongoing research and the various modes of investigation (qualitative, quantitative), tools needed, instrumentation, and theoretical background that guide particular research, and why.

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Investigator:	John Lochman, Ph.D.
Institution:	University of Alabama, Tuscaloosa, Alabama
Research Area:	Psychology/Aggressive Behavior
Project Title:	Field Trial Effects of the Coping Power Program
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students with psychology majors and an interest in applied research. Interest in child clinical issues and family processes also desirable.

Students will work on a grant-funded violence prevention project entitled Field Trial Effects of the Coping Power Program. The project is being carried out in city and county school systems in the Birmingham area. Students may participate in the following research tasks: (1) administration of research interviews to parents and children in their homes; (2) collection of data from teachers and other school personnel; (3) data entry; and (4) assisting research assistants with data management. Students will also participate in weekly lab meetings led by Dr. Lochman. Prior experience with psychological research is an asset. Good organizational skills and the qualities of reliability, timeliness, and professionalism are considered paramount.

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Investigator:	David Alain Wohl, M.D.
Institution:	The University of North Carolina at Chapel Hill, Chapel Hill, North Carolina
Research Area:	HIV and Criminal Justice System
Project Title:	HIV+ Releasees' Access to HIV Care and Services
Start Date, Program Length:	May/June 2006
Housing Available:	Yes
Student Attributes:	Seeking high school and undergraduate students with an interest in the nexus between incarceration and the HIV epidemic. This work touches on many societal issues that may be of particular concern to a student looking toward a career in public health, public policy, law, social justice, epidemiology, psychology, social work, or medicine. This study explores the role of race in the epidemics of HIV and incarceration, the interplay between substance abuse and HIV risk behaviors, gender differences in successful community re-entry, mental health aspects of HIV, and the community as an oasis of resources for those in need.

The Bridges to Health and Treatment (BRIGHT) Study is a randomized trial evaluating a strengths-model of case management to increase access to HIV care and services among incarcerated HIV-infected men and women. This model focuses on identifying the internal strengths of an individual and using these to accomplish goals and obtain needed resources. The case management intervention begins 3 months prior to prison release and continues for 6 months after release. It is being compared to the standard of care discharge planning conducted by the prison system, which involves referral to community agencies, but not post-release followup.

Access to HIV care and services, return to substance abuse, prison recidivism, HIV transmission risk behavior, and depression and quality of life assessments will be compared by study assignment.

The students will work closely with the multidisciplinary team of physicians, behavioralists, epidemiologists, social workers, and statisticians. Students will assist in participant interviewing within and outside of prison and other data collection and will participate in weekly research meetings. Opportunities for an independent project will be sought and supported, based on the interests of the student(s).

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Investigator:	Taru Kinnunen, Ph.D.
Institution:	Harvard Medical School, Boston, Massachusetts
Research Area:	Tobacco and Women, Smoking Cessation
Project Title:	Exercise and Nicotine Replacement for Female Smokers
Start Date, Program Length:	June 19, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with majors in biological science, behavioral science, or nursing. Students should have an interest in women's health and issues involving underrepresented minorities.

This research experience involves—

- Randomized, clinical trial testing behavioral intervention (exercise) as an adjunct to pharmacotherapy treating tobacco dependence among women
- Interviews/data collection with participants
- Data entry/management
- Recruitment of prospective participants
- Telephone medical screening

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Investigator:	Mary M. McKay, Ph.D.
Institution:	Mt. Sinai School of Medicine, New York, New York
Research Area:	Community Medicine Psychiatry
Project Title:	HIV Prevention Outreach for Parents and Early Adolescents
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students with an interest in communities that are underrepresented. Students should have an interest in research, social sciences, psychology, or social work. Students should have computer skills (Office Professional). Previous work/volunteering in a social science setting is a plus.

The Hope Family Project (HIV Outreach Prevention for Parents and Early Adolescents) is part of a group of Federal grants that Dr. Mary McKay and colleagues currently have that are community based. Specifically, the Hope Family Project focuses on HIV prevention with families and their early adolescents living in New York City family shelters. Students will be given an opportunity to work in communities and gain behavioral skills that are necessary in the social sciences.

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Investigator:	William A. Zule, Dr.P.H.
Institution:	RTI, International, Research Triangle Park, North Carolina
Research Area:	Substance Abuse/HIV/Hepatitis-C
Project Title:	Modeling HIV Diffusion Through Drug-Using Networks
Start Date, Program Length:	May 29, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interests in substance abuse and sexual health research. Experience with quantitative and qualitative data management software (e.g., Access, SPSS, or Atlas) would be beneficial for assisting with data analysis. Students must be comfortable and effective working among people of varying income levels, races, sexual identities, and drug-using behaviors. Because study participants are referred into the study by past participants, excellent "customer service" skills are essential to ensuring a pleasant experience for them. Students with phlebotomy training are also encouraged to apply.

The Modeling HIV Diffusion Through Drug-Using Networks Project, which is funded under NIDA's Sexual Acquisition and Transmission of HIV Cooperative Agreement Program (SATH-CAP), studies the sexual diffusion of HIV from core groups—injecting-drug users (IDUs) and men who have sex with men (MSM)—to the general population in two urban and three rural counties in North Carolina. The project will test participants for HIV and sexually transmitted infections and collect data on individual risk behaviors and social networks from over 2,500 participants. Data on the structural environment will also be collected and mapped. This data will be used as input for developing a variety of statistical, mathematical, and agent-based models to evaluate and simulate the effect of intervening at different levels (individual, network, structural environment) and points within levels. Students may be involved in (1) enrolling and leading participants' recruitment, (2) conducting additional qualitative interviews, and (3) data analysis. Students with phlebotomy training may also assist in collecting blood and urine specimens for testing.

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Investigator:	Joel Bennett, Ph.D.
Institution:	Organizational Wellness and Learning Systems, Inc., Fort Worth, Texas
Research Area:	Prevention
Project Title:	Internet Delivery of Workplace Substance Abuse Prevention
Start Date, Program Length:	May/June 2006
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with background/interest/coursework in industrial/organizational psychology, elective related to health/stress, occupational medicine, or health promotion. Especially interested in students with statistical proficiency and organizational skills.

The long-term objective of the proposed project is to develop an electronically based (e.g., CD-ROM/Internet/DVD) training program that will facilitate delivery of cost-effective alcohol or drug (AOD) workplace prevention programs in ways that afford "expertise on demand." Science-based programs are available that can improve workforce health and productivity, but managers are neither familiar with these programs nor know how to shape them to their particular work-site. The proposed training will enable behavioral health professionals—employee assistance professionals (EAPs), human resource, and health care managers—to (1) diagnose productivity and health (including substance abuse) in the organization, and (2) select and shape prevention interventions likely to reduce behavioral health problems. The Web site will provide access to a range of interventions that directly or indirectly link to AOD prevention (e.g., stress management).

A prototype Web site program was pilot-tested in Phase I. Human resource professionals, EAPS, and small business owners were interviewed and provided access to the Web site along with evaluation instruments. Later they attended focus groups that provided detailed feedback on the design, feasibility, and potential usefulness of the training. Evaluation data provided insights and suggestions for full development of an internet-based program designed to train professionals in assessing needs, selecting interventions, and evaluating results—all related to workplace AOD prevention.

Phase II proposes to fully develop and test the program in a rigorous, randomized field experiment with small businesses, human resources personnel, EAPs, and health service personnel. Specific objectives for Phase II are to—

- Develop a Web-based program that will promote delivery of evidence-based workplace substance abuse prevention.
- Test the program in a randomized field test (participants will be randomly assigned to the Web site condition or a control condition, and a survey will assess four stages of effectiveness: reactions, increased knowledge, actual utilization of programs, and impact on the workplace).
- Revise the program based on the field test results, and prepare for use by employers, human resource providers, and other health promotion providers throughout the country.

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Investigator:	Jane Liebschutz, M.D., M.P.H.
Institution:	Boston University Medical Center, Boston, Massachusetts
Research Area:	Post-Traumatic Stress Disorder, Substance Use Disorder, Chronic Pain
Project Title:	Co-Occurring Chronic Pain, Trauma, and Substance Abuse in Primary Care Setting
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with maturity and reliability; excellent oral communication skills; ability to process emotionally charged stories; ability to follow institutional review board protocol; confidence approaching and engaging with primary care patients of all ages, abilities, and ethnic backgrounds; and interest in clinical medicine or related fields.

Boston Medical Center provides the largest amount of medical care to indigent persons in the Commonwealth of Massachusetts. Dr. Jane Liebschutz, a primary care internist and director of postgraduate research training programs, is currently studying the co-occurrence of substance abuse, chronic pain, and posttraumatic stress disorder (PTSD) in primary care patients. Individual interviews assess subjects for substance use disorders, mental health problems, co-occurring trauma exposure, and patterns of health care utilization. The long-term goal of the study is to develop an effective, comprehensive treatment plan for doctors treating patients with multiple problems such as substance abuse, chronic pain, and psychological trauma.

Students will conduct interviews with primary care patients on drug and alcohol abuse, PTSD, depression, pain, and quality of life. Students will gain skills in data collection and research protocols. They will also have significant clinical exposure to patients. Students will participate in weekly meetings to critically evaluate the medical literature in the field as well as larger research team meetings where recruitment, data analysis, and manuscript writing are discussed.

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Investigator:	Mary M. Velasquez, Ph.D.
Institution:	University of Texas Health Science Center, Houston, Texas
Research Area:	Substance Abuse Treatment, Health Behaviors
Project Title:	A Transtheoretical Model Group Therapy for Cocaine
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students interested in behavioral changes studies, particularly within the medical setting, likely, but not limited to a preference for a major in psychology, sociology, or related field. Students must have some familiarity with Windows Operating System and knowledge of Microsoft Word, Excel, Access, and/or SPSS (Statistical Package for the Social Sciences). A professional demeanor is required.

This research is pilot-testing a novel and innovative behavioral group therapy for cocaine based on the Transtheoretical Model of behavior change (TTM). In Phase 1, investigators modified the Group Treatment for Substance Abuse: A Stages-of-Change Therapy Manual (Velasquez, Maurer, Crouch & DiClemente, et al., 2001) to specifically target cocaine abuse resulting in a 12-session group intervention and accompanying therapy manual based on the TTM stages and processes of change: six "early stage" sessions targeting the experimental processes of change and six "later stage" sessions targeting the behavioral processes of change. In Phase 2, the study involves conducting a pilot randomized trial with cocaine-abusing patients comparing the TTM group therapy to an education/advice comparison group.

This pilot study employs a randomized controlled, between-groups design in which cocaine abusers (N=80) are assigned to one of two group treatment conditions: TTM therapy or Education/Advice. Participants are recruited from Houston and surrounding communities through the Substance Abuse Research Center (SARC) at the University of Texas Medical Sciences Institute (MSI). The delivery of the TTM therapy for cocaine users is slated to be feasible and acceptable and to produce significant patient improvement. Cocaine outcomes are assessed via objective (urine and drug analysis) and self-report measures.

This research will contribute important information concerning the promise of a new and innovative intervention for cocaine abusers and will provide the basis for a larger efficacy trial. As the work is largely behavioral, student research assistants will preferably have interests and skills in the social and/or life sciences. At a minimum, students will be performing data handling and entry; other opportunities will be determined by the student's level of ability. This center is currently funded for a number of other studies, including examining brief interventions for alcohol in medically underserved communities, and some opportunities for cross-participation will be available.

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Investigator:	Julie K. Staley, Ph.D.
Institution:	Yale University, New Haven, Connecticut
Research Area:	Brain Imaging/Drug Addiction/Psychiatry
Project Title:	Brain Imaging of Tobacco Smoking
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who are enthusiastic about tackling a challenging field of study—namely, brain imaging. Students interested in medicine, psychology, psychiatry, and other sciences/math are encouraged to apply. An interest in addiction is also helpful. No experience is required, but comfort in interacting with human subjects and basic computer skills are recommended.

This program involves brain imaging of individuals with various addictions, primarily nicotine dependence in tobacco smokers. These studies use state-of-the-art brain imaging methods. This project uses single photon emission computed tomography (SPECT) to measure the number of nicotinic receptors in the living human brain and how these receptors may change over time, differ between smokers and nonsmokers, and also if they vary between men and women. Students will be involved in the daily running of these experiments, including helping with the recruitment efforts of treatment-seeking smokers in the smoking cessation program, meeting with human subjects to ensure abstinence from nicotine, and providing support to participants. Students will attend imaging studies and will learn how to analyze brain imaging data. A variety of laboratory meetings, data presentations, informal courses, and lectures on addiction and neuroimaging are available and recommended to students. Adequate supervision will be provided for students to learn to conduct brain image analysis.

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Investigator:	Danielle C. Ompad, Ph.D.
Institution:	New York Academy of Medicine, New York, New York
Research Area:	Substance Use and Infectious Diseases
Project Title:	Club Drugs Use and HIV Risks Among Minorities in NYC
Start Date, Program Length:	May 23–June 7, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	As public health research, and specifically urban health research, is often multidisciplinary, this project does not require students to have a particular major. Previous summer interns have majored in anthropology, biology, history, government, sociology, and Spanish. This project is looking for students with enthusiasm, flexibility, street sense, and strong communication and organizational skills. Individuals must be comfortable working in urban environments as they will be required to walk around the neighborhoods. The students must also be comfortable working with diverse populations. Students with a strong interest in community-based research, urban health, epidemiology, substance use, and/or HIV are desired. Spanish language skills and previous experience with HIV testing and counseling, statistical analysis, and/or interviewing are desired, but not required.

The Center for Urban Epidemiologic Studies (CUES) at the New York Academy of Medicine is committed to research to improve health and create new understandings of factors that influence the well-being of urban populations. CUES works to promote and advance cooperative efforts to understand the social, environmental, and biological influences on health. CUES is a research consortium established by the Academy in partnership with the New York City Department of Health. It was established to conduct collaborative, multidisciplinary, populations-based research, with a special focus on low-income, disadvantaged populations. Community residents and organizations help to identify vital research needs. Through an array of interventions and studies, CUES is working to bring about a better understanding of the New York Academy of Medicine and can be found on the website www.nyam.org.

IMPACT is a multilevel study being conducted by researchers at CUES. It is aimed at determining the association between features of the urban environment and three negative health outcomes: (1) post-traumatic stress disorder (PTSD), (2) HIV and other blood-borne pathogens, and (3) substance use. Surprisingly, little systematic research has explored the morbidity (i.e., PTSD, HIV, and substance use) while controlling for relevant individual-level covariates. This study will examine the independent and interactive effect of key features of the urban social environment (residential segregation, income distribution, neighborhood disadvantage) and of the urban physical environment (population density, public transportation, the built environment) as they relate to PTSD, sexual and drug use risk factors for HIV infection, HIV prevalence, and club drug use. The study therefore involves collecting three main types of data: archival data from sources such as the U.S. Census and the New York Housing and Vacancy Survey, neighborhood-level data from direct observation of neighborhood conditions and processes, and individual-level data from neighborhood

Continued

residents. Neighborhood-level data is collected through street surveys. Individual-level data is collected through face-to-face interviews in a research storefront or in a research van.

Summer students may be involved in one or more of the following projects related to IMPACT: face-to-face interviews with study participants either in the research storefront or research van, evaluation of the physical and social environment of 36 New York City neighborhoods, and survey of grocery stores in 36 New York City neighborhoods. When doing evaluations and surveys in the neighborhoods, students will work in pairs. Motivated students may be able to become involved in data analysis and manuscript development. Students will be able to attend monthly seminars and participate in a journal club.

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Investigator:	Chih-Wen Shi, M.D., M.S.H.S.
Institution:	University of California, San Diego, La Jolla, California
Research Area:	Smoking Cessation, Nicotine Patch, Health Services
Project Title:	Usage Patterns of Over-the-Counter Nicotine Patch: Consumer Survey
Start Date, Program Length:	June 1–July 1, 2006 (Flexible) — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking high school and undergraduate students who are interested in pursuing a career in public health, medicine, or pharmacy fields. Students will work closely with faculty and research teams in performing data collection, analysis, literature review, and manuscript preparation. Students will gain a better understanding of interaction between social science, public health, and medicine.

This program involves health services research that uses a multidisciplinary approach including social science, public health, medicine, and pharmacy. The research project surveys 600 customers who are purchasing nicotine patches from 30 community pharmacies throughout San Diego County in California. The goal is to describe real-world usage patterns of nicotine patches, determine if consumers are using this drug appropriately, and determine ways to improve proper and safe usage of nicotine patches to ultimately promote smoking cessation.

38

Investigator:	Kimberly Ann Yonkers, M.D.
Institution:	Yale School of Medicine, New Haven, Connecticut
Research Area:	Women's Health
Project Title:	PRIDE-P: Psychosocial Research To Improve Drug Treatment in Pregnancy
Start Date, Program Length:	June 5–19, 2006 — 2 weeks
Housing Available:	Possibly
Student Attributes:	Seeking students with some knowledge of psychology and basic human psychopathology. Students should have an in interest in learning more about psychology, psychiatry, alcohol and substance use, and general research methodology. As the study's participants are predominantly pregnant and postpartum women, students must be comfortable with this population and sympathetic/empathetic to the participants' life circumstances. Fluent Spanish-speaking students are encouraged to apply. In short, any student interested in working in the area of women's health who is motivated and an independent learner would be considered a great match.

Dr. Yonkers is an associate professor of psychiatry at the Yale School of Medicine in New Haven, Connecticut, who conducts research primarily in the area of women's health. She is currently the principal investigator for a National Institute on Drug Abuse R01 grant that focuses on delivering counseling to pregnant women who have used drugs or alcohol during their pregnancies and would like to work to change these behaviors. The women enrolled in this grant will receive this counseling at the prenatal clinics in New Haven, Bridgeport, or Hartford, Connecticut, where they already receive their routine prenatal care. The grant aims to compare the relative effectiveness of a brief cognitive behavioral protocol to a brief educational advice protocol with regard to the women's continued drug or alcohol use during pregnancy, the overall course of their pregnancy, and the health of their babies upon delivery. During the summer of 2006 the grant will be in its second year of funding.

39

Investigator:	J.W. Whitlow, Jr.
Institution:	Rutgers University, Camden, New Jersey
Research Area:	Psychology
Project Title:	SPARC 2000+ Science Fair Drug Abuse Science Literacy
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interests in brain, biological, behavioral, and cognitive sciences. Students who would like to be educators in science of some form are particularly desirable as participants will assist in training teachers and other students.

SPARC 2000+ holds a Science Fair Summer Institute that is designed to introduce methods and procedures from multiple sciences, essential for addressing the problems of drug abuse and addiction, which can be used to develop science fair projects for middle school and high school students. Work in the Institute focuses on at least five different approaches:

- Cognitive/Psychophysiological
- Cellular/Molecular
- Survey/Questionnaire
- Physiological/Model System
- Naturalistic/Observational

By the end of this program, participants should know more about the sciences of drug abuse and drug addiction and feel comfortable helping students develop science fair projects based on these topics.

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Investigator:	Harriet de Wit, Ph.D.
Institution:	University of Chicago, Chicago, Illinois
Research Area:	Human Psychopharmacology
Project Title:	Determinants of Drug Preference in Humans
Start Date, Program Length:	June 1, 2006 — 8 weeks
Housing Available:	Yes
Student Attributes:	Seeking high school and undergraduate students with good social skills, a background in psychology or pharmacology, and some basic experience with statistics.

This laboratory conducts studies on the subjective and behavioral effects of psychoactive drugs in healthy human volunteers. In separate projects, items studied include individual differences in responses to drugs, interactions between stress and drugs, and the effects of drugs on impulsive behavior. Students learn about the design and methods used in human pharmacology studies, ethical issues that apply to this type of research, and procedures that are in place to protect subject safety and confidentiality. Students will learn about data collection, data management, and basic statistical analysis. They may also assist in conducting laboratory sessions.

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Investigator:	Lynn Singer, Ph.D.
Institution:	Case Western Reserve University, Cleveland, Ohio
Research Area:	Behavioral Teratology
Project Title:	Cocaine-Exposed Children at School Age
Start Date, Program Length:	May 22, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who have a major in psychology, medicine, or one of the behavioral sciences. Candidates with an interest in an academic career who are looking for research experience in developmental outcomes related to prenatal drug exposure are preferred. A sincere interest in working with children is also preferred.

This longitudinal study of prenatal cocaine exposure is currently in its 11th consecutive year. The focus of the study is on cognitive and emotional outcomes of prenatally cocaine/polydrug-exposed children and the environmental correlates that contribute to the outcomes, either positively or negatively. During the summer of 2006, the study will be analyzing the 9-year outcome data, completing this 10- and 11-year assessment, and preparing for the 12-year assessment phase. The summer interns will be involved in several research activities, such as observing child and caregiver assessment, attending weekly talks given by co-investigators, completing assigned readings of relevant topics, and working directly with a mentor on an individual research topic. The summer will end with a formal presentation of research that is offered to the research group.

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Investigator:	Beryl Koblin, Ph.D.
Institution:	The New York Blood Center, New York, New York
Research Area:	Epidemiology
Project Title:	HIV Vaccine Trials Among Women
Start Date, Program Length:	Mid-June 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with a major in the social sciences; experience working in diverse communities; and strong interest in HIV prevention and outreach and working with communities at risk of HIV infection.

Project ACHIEVE, part of the Laboratory of Infectious Disease Prevention of the New York Blood Center, conducts research on the epidemiology of HIV infection in New York City and development and testing of strategies to prevent HIV infection, including behavioral interventions and preventive HIV vaccines. At two research sites in Manhattan and the South Bronx, Project ACHIEVE engages with populations at risk of HIV infection. There are ongoing research programs in place that test strategies for HIV risk-reduction counseling and education about HIV vaccines among women at risk and test candidate HIV vaccines. This program predominantly involves behavioral work.

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Investigator:	Kelly J. Kelleher, M.D., M.P.H.
Institution:	Columbus Children's Research Institute, Columbus, Ohio
Research Area:	Adolescent Drug Screening
Project Title:	Trial of Automated Risk Appraisal for Adolescents (TARAA)
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who are independent, motivated, and interested in presentations and publications. Although not required, any special skills in programming or technology implementation are also helpful.

The Center for Healthcare Transformation at the Columbus Children's Hospital is a leading provider of new technology and improvements for children and adolescents with, or at risk for, drug abuse. Current projects included early identification and intervention for patients in primary care sites and schools. Selected students in the Program will have the opportunity to select from among direct data collection and coordination in local primary care centers, publications from secondary data analyses, and development of computer technologies for tracking drug abusing youth with suicidal ideation, or some combination thereof.

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Investigator:	Michael Lewis, Ph.D.
Institution:	UMDNJ, Robert Wood Johnson Medical School, Piscataway, New Jersey
Research Area:	Behavioral Teratology
Project Title:	Developmental Effects of Prenatal Cocaine Exposure
Start Date, Program Length:	June 15, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with an interest in developmental psychology.

This is a prospective longitudinal study of the developmental effects of prenatal cocaine exposure for 13 years. The subjects, studied from birth, are currently turning 12_ years of age. Major interests have been on emotional and social behavioral outcomes and cognitive functions.

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Investigator:	Warren K. Bickel, Ph.D.
Institution:	University of Arkansas for Medical Sciences, Little Rock, Arkansas
Research Area:	Behavioral Research
Project Title:	Delay Discounting in Drug Dependence
Start Date, Program Length:	June 1, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students, preferably with an interest or major in psychology or related fields. Students with interest in conducting human research, drug abuse, and/or in principles of learning and behavior are strongly encouraged to apply. Research experience is not a prerequisite.

The Center for Addiction Research (CAR) laboratory research program is part of the Department of Psychiatry at the University of Arkansas for Medical Sciences in Little Rock, Arkansas. Behavioral economics, which combines concepts from behavior analysis, psychology, and economics, is the main theoretical framework for CAR's laboratory studies. The laboratory projects include a range of decisionmaking studies with human participants, including multiple experiments on delay discounting. This research program provides an environment where basic behavioral research is employed to further the understanding of drug dependence.

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Investigator:	Mark Muraven, Ph.D.
Institution:	University at Albany, State University of New York
Research Area:	Psychology
Project Title:	Practicing Self-Control Lowers the Risk of Smoking Lapse
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking high school and undergraduate students interested in psychological research, especially applying theories of self-control to addictive behaviors. Candidates must be dependable, detail-oriented, and adherent to confidentiality policies. Candidates should be personable and comfortable screening potential clients and interacting with participants in a smoking cessation study. Experience administering psychological tests and conducting research is a plus (but not mandatory).

This study investigates the role of self-control in smoking cessation and whether interventions that improve self-control can help reduce the risk of lapsing among smokers who wish to quit. Student researchers will help screen potential clients, discuss smoking cessation with participants, train participants in self-control techniques, and track their progress through the study.

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Investigator:	Diana Sylvestre, M.D.
Institution:	Organization To Achieve Solutions in Substance Abuse (OASIS), Oakland, California
Research Area:	Addiction and Hepatitis C
Project Title:	Engaging High-Risk Drug Users in Hepatitis C Care
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students who are comfortable working with diverse and challenging patients who may be homeless or have drug problems or mental illness. Students considering medicine as a career will find this site particularly interesting, as will those with an interest in clinical and social service research.

OASIS is a community-based nonprofit clinic dedicated to providing high-quality medical services to extremely diverse and underserved patients with addiction, hepatitis C, mental illness, and other serious conditions. OASIS is recognized for clinical research in hepatitis C and addiction, has developed a unique hepatitis C video curriculum to help drug users deal with their hepatitis C, and encourages them to get into recovery. Students will participate as team members and assist with education.

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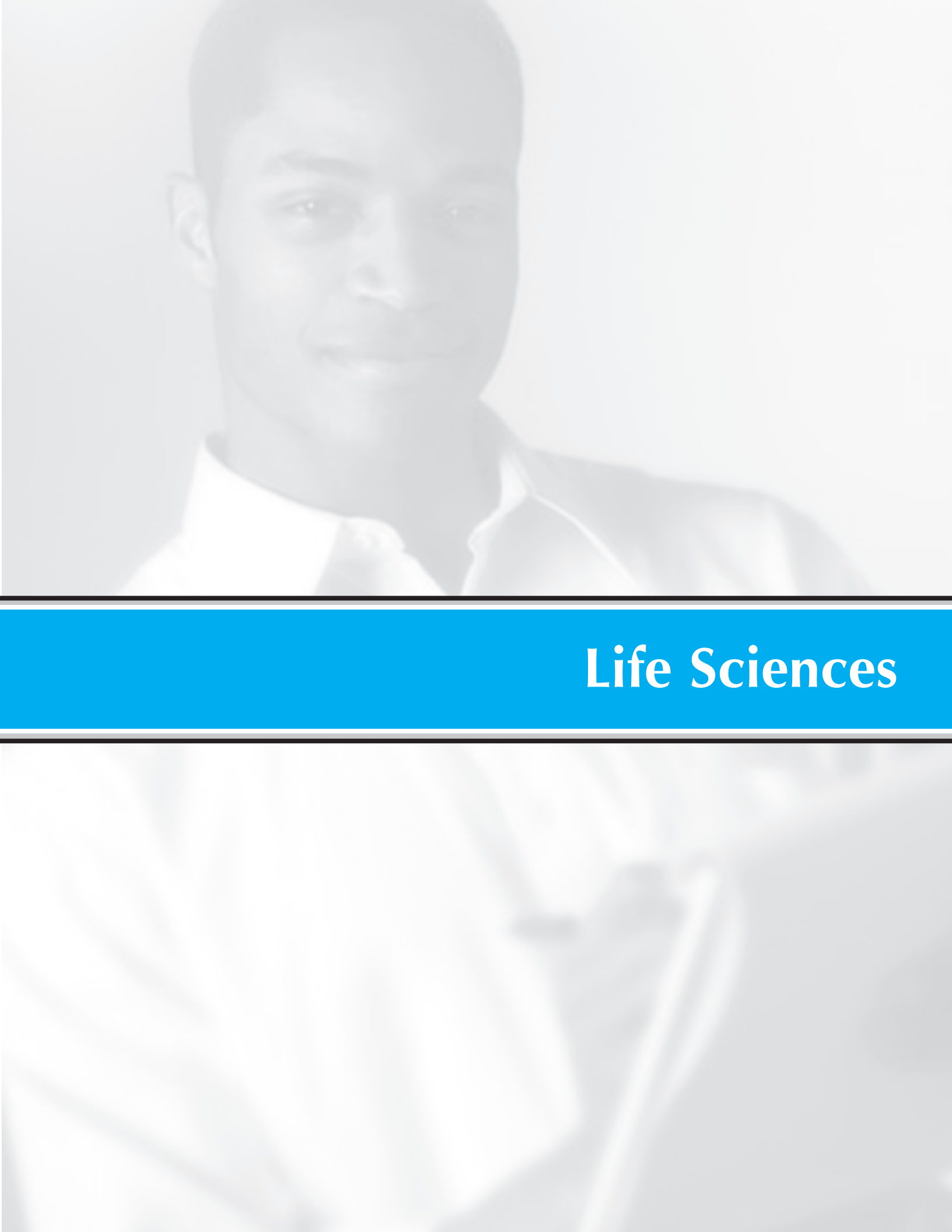
Investigator:	James Anthony, Ph.D.
Institution:	Michigan State University, East Lansing, Michigan
Research Area:	Epidemiology and Prevention
Project Title:	MSU-NIDA Summer Program on Drug Dependence Epidemiology
Start Date, Program Length:	June 26, 2006 — 8–10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interest in all stages of drug involvement and the range of suspected causal determinants of drug involvement; should have strong verbal and quantitative aptitudes and the social skills required to be effective recruiters of sampled participants in epidemiological field of studies. Strong interest or concentration in the behavioral sciences is valuable, but the range of declared majors may be broad. As this project is set up in a medical school, pre-med majors may also be interested.

NIDA summer research apprentices will join an active NIDA and NIH Fogarty International Center-supported research group with current masters, predoctoral, and postdoctoral trainees from the U.S. mainland, American Samoa, Puerto Rico, Peru, Mexico, and China, all of whom are engaged in epidemiological field research on the stage of drug involvement that runs from the earliest thoughts about using drugs through the stages of experiencing drug exposure opportunities, actual drug use, the earliest clinical features of drug dependence, and clinically significant drug dependence. Guided by program mentors selected from among the advanced predoctoral and postdoctoral fellows, the NIDA apprentices will learn basic epidemiology and biostatistics, as well as basic data management and practical analysis skills (using STATA software). The NIDA apprentices will also learn data acquisition using the MSU-developed Longitudinal Surveillance research, including programming of the LSE for online surveillance, sampling, recruitment, and baseline assessment of sampled participants, basic analyses, and descriptive report writing. Apprentices will develop proficiency in presentation graphics software (MS PowerPoint) and the preparation of tables and figures for scientific presentations.



Life Sciences

Life Sciences

Ideal for, but not limited to, students with majors/interests in biology (molecular/cell), neurobiology, psychobiology, neuroscience, behavioral neuroscience, pharmacology, chemistry, biochemistry, and brain imaging

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Investigator:	Amelia J. Eisch, Ph.D.
Institution:	University of Texas, Southwestern Medical Center at Dallas, Dallas, Texas
Research Area:	Basic Neuroscience Research
Project Title:	Impact of Drug Abuse on Adult Neurogenesis
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with a background in biology, a neuroscience major if possible, and interest in learning and memory, drug addiction, cell cycle, and/or stem cell research. Students should be open to working with rats and mice (not mandatory). Prior laboratory work a plus (learning and memory testing, immunohistochemistry, confocal microscopy). If no prior laboratory work, student should be hardworking, curious, and forthright.

The Eisch Laboratory in the Department of Psychiatry at the University of Texas, Southwestern Medical Center provides a scientifically rich and intellectually rigorous atmosphere in which to do basic science research on the impact of drugs of abuse on the adult rat and mouse brain. Using a broad spectrum of approaches—from behavioral analysis of memory function to confocal microscopic analysis of individual brain neurons—researchers use animal models of drug exposure to identify neuroadaptations in the brain that may contribute to or underlie cognitive deficits seen after chronic morphine or cocaine use. Currently, most projects focus on adult neurogenesis—–the birth of new neurons in the adult brain—and how it is altered by drug exposure. For more details on the Eisch Laboratory, visit our Web site at http://www3.utsouthwestern.edu/eisch/home.html.

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Investigator:	Palmer Taylor, Ph.D.
Institution:	University of California, San Diego, California
Research Area:	Nicotinic Receptors and Cholinergic Neurotransmission
Project Title:	Nicotinic Receptor Template Guided Drug Design
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with chemistry, biochemistry, or pharmaceutical chemistry majors.

This grant is directed at the synthesis of new nicotinic agonists and antagonists that may be used in smoking cessation and other therapeutic modalities. This is a joint grant with Scripps Research Institution in La Jolla, California.

51

Investigator:	Haley E. Melikian, Ph.D.
Institution:	University of Massachusetts Amherst, Medical School, Framingham, Massachusetts
Research Area:	Neurotransmitter Transporter Regulation
Project Title:	Trafficking and Regulation of Monoamine Transporters
Start Date, Program Length:	May 29, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with a strong interest in neuroscience, cell biology, molecular biology, and/or biochemistry. Completed coursework in general chemistry and organic chemistry required, and additional completed coursework in biochemistry preferred. Previous laboratory experience also preferred.

Chemical neurotransmission across synapses is terminated by the rapid reuptake of neurotransmitter from the synaptic cleft back into presynaptic terminals. Reuptake of the biogenic amines serotonin, norepinephrine, and dopamine is blocked by addictive psychostimulants, such as cocaine and amphetamine, as well as by a variety of psychoactive drugs, such as antidepressants and Ritalin. Plasma membrane neurotransmitter transporters are the proteins responsible for presynaptic reuptake and are expressed widely throughout the brain. Recent studies have demonstrated that in addition to blocking transporter function with drugs, the brain itself is capable of altering transporter function. Studies in our laboratory focus on the cellular and molecular mechanisms controlling transporter function. Students will be exposed to a wide variety of cellular, molecular, and pharmacological approaches to studying the brain.

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Investigator:	Gary Aston-Jones, Ph.D.
Institution:	University of Pennsylvania, Philadelphia, Pennsylvania
Research Area:	Behavioral and Systems Neuroscience
Project Title:	Role of Orexin Neurons in Reward Processing
Start Date, Program Length:	July 2006 — 9 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students with a major in the life sciences.

It has recently been shown that orexin neurons in the lateral hypothalamus (LH) play an important role in reward processing and relapse to drug-seeking. This project will extend these studies by examining inputs to (1) LH orexin neurons from other brain areas and (2) targets of LH orexin neurons. These experiments will employ tract-tracing methods combined with immunohistochemistry in rat brain sections. The student's role will be to cut brain sections, stain brain sections for tract-tracer and neurotransmitter molecules, and survey brain sections with a microscope to identify labeled neurons.

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Investigator:	Gonzalo E. Torres, Ph.D.
Institution:	University of Pittsburgh, Pittsburgh, Pennsylvania
Research Area:	Monoamine Transporters/Cellular and Molecular Mechanisms
Project Title:	Proteomic/Genetic Approaches to Monoamine Transporters
Start Date, Program Length:	Mid-June, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with biology/biochemistry background and some research experience who are HIGHLY motivated and eager to learn.

It has recently been shown that orexin neurons in the lateral hypothalamus (LH) play an important role in reward processing and relapse to drug-seeking. This project will extend these studies by examining inputs to (1) LH orexin neurons from other brain areas and (2) targets of LH orexin neurons. These experiments will employ tract-tracing methods combined with immunohistochemistry in rat brain sections. The student's role will be to cut brain sections, stain brain sections for tract-tracer and neurotransmitter molecules, and survey brain sections with a microscope to identify labeled neurons.

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Investigator:	Robin A.J. Lester, Ph.D.
Institution:	University of Alabama at Birmingham, Birmingham, Alabama
Research Area:	Nicotine Addiction
Project Title:	Subunit-Dependent Regulation of Nicotinic Receptors
Start Date, Program Length:	June 12, 2006 — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students with major or minor in neuroscience/psychology and understanding of practical chemistry.

Hypothesis: Nicotinic receptors are functionally upregulated following chronic nicotine. The project includes in vitro electrophysiological (patch-clamp) and microfluorescent (intracellular) measurement of calcium analysis of nicotinic receptor responses in hippocampal neurons following chronic nicotine treatment in vivo.
Basic laboratory work will involve brain tissue preparation, solution preparation, acquisition of data at a dedicated work station, and computer-aided data analysis.

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Investigator:	Jay W. Pettegrew, M.D.
Institution:	University of Pittsburgh, Pittsburgh, Pennsylvania
Research Area:	Neurophysics
Project Title:	31P-1H MRSI and MRI of Brain Studies of Nicotine
Start Date, Program Length:	April 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students interested in brain studies using NMR/MRI. Students should also have a major/emphasis in chemistry and/or pharmacology.

This study will investigate the effect of acute administration of (-)nicotine to human subjects on measures of high-energy phosphate (phosphocreatine [PCr] and adenosine 5′-triphosphate [ATP]) and membrane phospholipid metabolism (phosphomonoesters [PME] and phosphodiesters [PDE]) by 31P-magnetic resonance spectroscopic imaging (MRSI) and on measures of N–acetylaspartate (NAA) (a putative measure of neuronal integrity), trimethylamines (TMA) (glycerophosphocholine [GPC], phosphocholine [PC], and choline), and total creatine (Crt) (PCr and creatine) by 1H MRSI. Both short correlation time (s_c) and intermediate correlation time (i_c) components of the PME and PDE resonances will be quantified. The influence of subject age on the molecular and metabolic responses to (–)nicotine will be investigated. Quantitative 1H magnetic resonance imaging (MRI) will be performed in order to correlate the metabolic findings with the percent gray matter, white matter, and CSF in the voxels of interest (VOI) from which the MRSI data is obtained. The brain areas sampled by 31P-1H MRSI are left and right: prefrontal cortex, superior temporal cortex, inferior parietal cortex, occipital cortex, and basal ganglia. Our preliminary findings in rats suggest that acute (–)nicotine administration enhances breakdown of high-energy phosphates, NAA, and membrane phospholipids. After chronic administration to rats, (–)nicotine appears to decrease breakdown of high-energy phosphates but increase breakdown of membrane phospholipids. The proposed study will address the following questions:

- What effect, if any, does acute (–)nicotine administration by nicotine patch have on brain metabolic measures as monitored by 31P-1H MRSI?
- Does the age of the subject influence the metabolic response to acute (–)nicotine administration?
- Does the metabolic response to acute (–)nicotine administration involve alterations in levels of high-energy phosphates, membrane phospholipid metabolites, or NAA?
- Do the levels of NAA, PCr, PME(s_c), PME(i_c), PDE(s_c), and PDE(i_c) correlate with the percent gray matter in the same VOI?
- Does the metabolic response to acute (–)nicotine administration by patch correlate with subjective behavioral measures such as the Profile of Mood States (POMS) and the Subjective Effects Questionnaire?
- Does the brain metabolic profile of smokers differ from nonsmokers for each of the age groups?
- Do levels of metabolites found in smokers correlate with the age of onset?

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Investigator:	Kim M. Blankenship, Ph.D.
Institution:	Yale University, New Haven, Connecticut
Research Area:	Sociology, Race/Gender Inequity, Policy
Project Title:	Criminal Justice, Race, and HIV Risk in Connecticut Drug Users
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate students with interest in HIV/AIDS issues. Must be willing to work as a team member and demonstrate nonjudgmental attitude towards drug users and those with history of incarceration. Should have broad range of skills or desire to augment skills, including literature reviews, interview transcription, qualitative interview coding, data entry, and face-to-face interviewing.

This project focuses on developing a better understanding of how the criminal justice system influences HIV risk in general, and race disparities in HIV in particular, among individuals with a history of drug use. It involves life history and structured survey interviews with former inmates (male, female, White, African American) currently on probation and parole, as well as semistructured interviews with members of the criminal justice system (parole/probation officers, attorneys, judges).

The focus of the interviews of former inmates will be on experience in the criminal justice system, degree of socioeconomic vulnerability, network and family relationships, service utilization, and sex and drug use behaviors. Interviews with members of the criminal justice system will include topics such as their work histories and job responsibilities; their use of discretionary authority and monitoring powers; attitudes towards clients, drug use, and HIV; and views on reform of the criminal justice system.

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Investigator:	James L. Sorensen, Ph.D.
Institution:	University of California, San Francisco, San Francisco, California
Research Area:	Drug Abuse Treatment Outcome Research
Project Title:	California-Arizona Node, NIDA Clinical Trials Network
Start Date, Program Length:	May 23, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking high school students with interest in conducting scientific research. Ideally, high school applicants should have conducted, or would like to conduct, research in high school, such as a small project in local science fair. Students should be prepared to spend time in a culturally and economically diverse environment. An interest in the helping professions, such as medicine, psychology, social work, law, or counseling, is desirable. Ideal candidates have the goal of gaining acceptance to a national research university.

The California-Arizona Node of the NIDA Clinical Trials Network is based at San Francisco General Hospital (SFGH), a hospital of the University of California, San Francisco (UCSF). Located in the Mission District, students will have contact with a culturally and economically diverse group of patients and research participants. Research studies are conducted at clinics that are part of the SFGH Division of Substance Abuse and Addiction Medicine. The SFGH Division of Substance Abuse and Addiction Medicine has conducted numerous research projects for over 29 years. Many members of the research faculty are also affiliated with the NIDA-funded San Francisco Treatment Research Center at UCSF and the NIDA postdoctoral training program in substance abuse research. Students will participate in a variety of research activities.

The California-Arizona Node is involved in conducting high-quality, multisite clinical trials of interventions for substance abuse. During the summer, the California-Arizona Node will also sponsor a dissemination conference. Research studies are restricted to human participants; there are no laboratory or bench science studies at the SFGH Division of Substance Abuse and Addiction Medicine. Students interested in psychological and social issues will find studying at the California-Arizona Node appealing. Many faculty and research staff are members of underrepresented minority groups. Several substance abuse research studies are also conducted at UCSF in addition to the clinical trials that are part of the Clinical Trials Network.

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Investigator:	Theodore C. Friedman, M.D., Ph.D.
Institution:	Charles R. Drew University of Medicine and Science, Los Angeles, California
Research Area:	Opiates and Nicotine
Project Title:	(1) Genes and Proteins Involved in the Switch Leading to Addiction (2) Chronic Nicotine's Activation of the HPA Axis (3) HPA Axis Activation and Nicotine Dependence (4) Addiction Parameters and Opiate Biosynthesis in PC2 Knockout Mice
Start Date, Program Length:	May 23, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with molecular biology skills, animal handling skills, and computer skills (Excel, Word, and PowerPoint).

Charles R. Drew University is a site of the Minority Institution's Drug Abuse Research Development Program (MIDARP). Dr. Theodore Friedman is the Program Director. The overall goals of MIDARP are to (1) develop the drug abuse research at Drew, (2) provide research development support and experiences to faculty and staff to facilitate independent drug abuse research careers, (3) foster interest in drug abuse research for students and residents and provide them research experiences, and 4) provide for continued drug abuse research funded by NIDA or other agencies. We will specifically encourage the development of minority faculty and students.

The theme of the training and education program will be "addiction is a brain disease and it matters" and will incorporate expertise at Drew in both the basic and clinical aspects of substance abuse. We have elected not to limit the area of substance growth at Drew; all projects related to the theme of substance abuse as a disease of the brain will be encouraged. Although the primary projects are both basic science projects related to mechanisms of opiate addiction, the aims of this grant will be to increase all aspects of substance abuse research (basic science, translation, and clinical and survey research), based on the interests of the faculty.

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Investigator:	Jianren Mao, M.D., Ph.D.
Institution:	Massachusetts General Hospital, Harvard Medical School, Boston, Massachussetts
Research Area:	Opioid Tolerance
Project Title:	Cellular Mechanisms of Opioid Tolerance and Hyperalgesia
Start Date, Program Length:	July 1, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interest in life science research and some experience with laboratory studies (e.g., summer work in a basic science research laboratory). Previous experience with animal studies, preferably in pain or opioid tolerance research, would be a welcome addition.

The Pain Research Group at the Massachusetts General Hospital, Harvard Medical School is interested in studying the neural and molecular mechanisms of opioid tolerance and hyperalgesia. Multidisciplinary approaches are employed in this laboratory, including molecular biology techniques, pharmacological tools, cell culture, electrophysiology, autoradiography, immunohistochemistry, confocal microscopy, HPLC, ELISA, rodent surgery, and behavioral assessment. The principal investigator is a physician and scientist who has access to patients with pain and opioid therapy through his appointment as a pain physician with the Department of Anesthesia and Critical Care at the Massachusetts General Hospital.

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Investigator:	Deborah C. Mash, Ph.D.
Institution:	University of Miami, Miller School of Medicine, Miami, Florida
Research Area:	Neurochemistry, Gene Regulation, Toxicology, Postmortem Human Brain
Project Title:	CNS Mechanisms in Cocaine-Related Sudden Death
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with declared major in either biology or chemistry; laboratory background/rotation preferred.

Cocaine is a reinforcing drug with high abuse liability and substantial morbidity and mortality. Cocaine's potent actions on dopamine (DA), serotonin (5-HT), and norepinephrine (NE) transport are well known. However, the relationship between the long-term effects of chronic cocaine abuse and the regional neuroadaptive changes in human brain is less certain. Because the transit of cocaine from the Caribbean corridor to the United States frequently occurs through South Florida, metropolitan Miami-Dade County has continued to have a high incidence of cocaine-related deaths. In collaboration with the Miami-Dade County Medical Examiner Department, we have developed a bank of postmortem brain specimens from cocaine users. Based on a retrospective case control analysis of the toxicology reports, scene descriptions, supplemental background information, interviews with the next-of-kin, and autopsy findings, we assign cases into three groups: cocaine-related sudden death, excited cocaine delirium, and drug-free control subjects.

The proposed studies are designed to identify neuroadaptive and neurodegenerative changes in biogenic amine pathways in the postmortem human brain. Neuroadaptation and neurodegeneration in DA, 5-HT, and NE systems are central to the vulnerability, progression, and long-term consequences of addictive behavior. DAergic signaling underlies the reinforcing properties of cocaine, while serotonergic dysfunction may be associated with behavioral disinhibition and negative mood states. Recent studies of the noradrenergic system suggest that a dysregulation of NE transport by cocaine may contribute to cerebrogenic cardiovascular and autonomic disturbances that lead to sudden death. We are currently studying the effects of chronic cocaine exposure on the regulation of DA and NE transporters. Specifically, we plan to test the following hypotheses:

- DA transporter upregulation occurs in parallel with an increase in the expression of alpha-synuclein protein in DA and NE neurons.
- Asymmetric changes in NE transporter expression occurs in higher brain autonomic centers (insula and amygdaloid subnuclei) in cocaine-related sudden death as compared to age-matched drug-free control subjects.
- Regulatory changes in biogenic amine transporters demonstrate lateral asymmetry in the amygdala and anterior insular cortex.
- Changes in particular biogenic amine transporters and gene transcripts are specific to the pathology of cocaine-excited delirium.

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Investigator:	Peter R. Martin, M.D.
Institution:	Vanderbilt University Medical Center, Nashville, Tennessee
Research Area:	Addiction Psychiatry
Project Title:	Maternal Opioid Treatment: Human Experimental Research
Start Date, Program Length:	May–June 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students who are scientifically oriented with good quantitative or computer skills and interest in interaction with patients.

This is a very active research environment with many research programs from bench to bedside. The component of research that is funded by NIDA is related to addiction to opiates in pregnant women.

Vanderbilt is also participating in a $2 million, multicenter study funded by NIDA of the National Institutes of Health to find out the best way to treat pregnant women who are opioid dependent—with methadone or buprenorphine. Currently, if a woman is pregnant the approved treatment of choice is methadone, but the belief is that buprenorphine will be a significant advance in caring for the woman during her pregnancy and ultimately in the outcome of the child. Since the unborn child becomes opioid dependent in utero, it is believed that the severity of the withdrawal for the child after birth will be less with buprenorphine than with methadone. Vanderbilt, one of eight sites around the world participating in the study, recently enrolled its first patient. Dr. Martin, who is coprincipal investigator in the Vanderbilt portion of the study with Karen D'Apolito, Ph.D., R.N., assistant professor of nursing and director of the Neonatal Nurse Practitioner Program at the Vanderbilt University School of Nursing, stated that 60 patients will be enrolled at Vanderbilt over the next 5 years. Also collaborating in the study are Barbara Engelhardt, M.D., associate professor of pediatrics, Christopher Greeley, M.D., assistant professor of pediatrics, Paul Bodea-Barothi, M.D., assistant professor of psychiatry, Mavis Shorn, R.N., a certified nurse midwife, and Cornelia Graves, M.D., associate professor of obstetrics and gynecology and interim director of Maternal Fetal Medicine. The trial is a double-blind, double-dummy randomized control trial, meaning participants will receive both a tablet under the tongue and a fruit-flavored drink, and neither the investigators nor the patients will know which they are receiving.

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Investigator:	Wouter Koek, Ph.D.
Institution:	University of Texas Health Science Center at San Antonio, San Antonio, Texas
Research Area:	Drugs of Abuse
Project Title:	Neuropharmacology of GHB Discrimination; Amphetamine, Insulin, and the DA Transporter In Vivo; Discriminative Stimulus Effects of Opioid Withdrawal
Start Date, Program Length:	June 5, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with at least a B (3.0) GPA. Should have completed a basic college-level course in chemistry and/or biology and have a willingness to work hard.

The Departments of Pharmacology and Psychiatry at the University of Texas Health Science Center at San Antonio have a 10-week summer undergraduate research program that will run June 5, 2006–August 11, 2006. The summer program offers participants a variety of experiences that will help prepare them for success in research-intensive doctoral programs related to drug abuse. Participants will have research responsibilities, attend seminars, actively participate in a student journal club, and take part in formal course work. The primary approach in the laboratory employs behavioral techniques using mice, rats, and pigeons.

Upon entering the program, students will go through an orientation that includes information on the departments and presentations by representatives from Institutional Safety, Radiation Safety, and Laboratory Animal Resources. Once students enter the laboatories they will be working in for the summer, they are quickly enveloped by the laboratory culture. Summer Research Assistants (SRAs) are given a project to work on by their faculty mentor and will work closely with their laboratory group throughout the summer. The two courses (Techniques and Biological Bases of Brain Function) offered in the program are the equivalent of one-credit courses and are taught in the manner of graduate-level courses, with one overall course director and several lecturers who are experts in the material being presented. There is no testing. During the last week of the summer program, SRAs will turn in a brief paper detailing their research activities and give an oral presentation to faculty members, graduate students, and postdoctoral fellows. Student will have an opportunity to work on an array of ongoing research projects.

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Investigator:	John R. Mantsch, Ph.D.
Institution:	Marquette University, Milwaukee, Wisconsin
Research Area:	Preclinical Investigation of Relationship Between Stress and Cocaine Addiction
Project Title:	Preclinical Neurobiological Research on Cocaine Addiction
Start Date, Program Length:	May 30, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interest in preclinical neuroscience addiction research. Should be a rising sophomore, junior, or senior with declared major in the life sciences (e.g., biology, biomedical sciences, neuroscience, related majors) or social sciences (e.g., psychology). Prior laboratory experience is desirable but not required. Students must be willing to engage in animal research. Participating students will be expected to be available for the duration of the 10-week, 40-hour week program, which begins May 30, 2006, and ends August 4, 2006.

Successful applicants to this miniprogram will work in the laboratory of a funded NIDA researcher/mentor in the Department of Biomedical Sciences at Marquette University and will participate in the Biomedical Sciences Summer Research Program (SRP) in the College of Health Sciences, directed by the principal investigator, Dr. Mantsch. The Biomedical Sciences SRP is a competitive summer program for rising sophomore, junior, and senior undergraduate students with interest in biomedical research. Successful applicants to the program receive a summer research stipend for participation in the 10-week, 40-hour/week program. As part of the program, students conduct biomedical research in the laboratories of participating faculty mentors and present their research findings at a formal symposium upon the program's completion. The program also includes a number of scientific, educational, and social activities, including a weekly faculty mentor seminar series, weekly data discussions, attendance at local sporting events, and a 2-day lecture and dissection minicourse sponsored by the Department of Biomedical Sciences entitled "The Human Brain."

Last year, the program consisted of 20 students who worked in the laboratories of 11 researchers in the College of Health Sciences. Three of the program mentors are NIDA-funded researchers (Drs. Mantsch, Baker, and Ghasemzadeh) who are using preclinical animal models to investigate the neurobiology of cocaine addiction. These researchers will also serve as mentors for the NIDA Summer Research miniprogram. Specific research interests are: investigation of the relationship between stress and cocaine addiction (John R. Mantsch, Ph.D., NIDA R01 DA 15758); investigation of the contribution of drug-induced neuroplasticity to cocaine addiction (David A. Baker, Ph.D., NIDA R01 DA 17328); and investigation of cellular and molecular mechanisms of cocaine addiction (M. Behnam Ghasemzadeh, Ph.D., NIDA R01 DA 14323). Five other mentors have current or past funding from other sources for addiction-related research.

Continued

In addition to the Biomedical Sciences SRP activities described above, successful NIDA Summer Research applicants will engage in coordinated activities with the Ronald E. McNair Summer Research Internship Program (SRIP) for underrepresented students at Marquette and with its multidisciplinary Addiction Research Group. This will include visits to a Marquette-affiliated addiction counseling/treatment center in a homeless shelter that provides mental health and addiction services to the poor, marginalized, and underserved populations in the Milwaukee metropolitan area and to a state-of-the-art functional imaging center and addiction research site at the Medical College of Wisconsin. Students will also have the opportunity to interact with an invited faculty seminar speaker who is an underrepresented addiction researcher in the field of neuroscience.

The stipend will consist of $4,000 ($10/hour) for the 10-week, 40-hour/week program. Funds for travel to and housing at Marquette will be provided as part of the requested funds with costs not to exceed the permissible $2,500/student.

Additional materials describing the research activities of faculty in the Department of Biomedical Sciences at Marquette and the environment for undergraduate research as well as the College of Health Sciences Biomedical Sciences SRP will be mailed. A detailed description of our Summer Research Program is available on the Web at www.marquette.edu/chs/bisc/summer_research_program.html.

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Investigator:	Estelle B. Gauda, M.D.
Institution:	Johns Hopkins University School of Medicine, Baltimore, Maryland
Research Area:	Developmental Biology
Project Title:	Neonatal Animal Models of Opiate Withdrawal
Start Date, Program Length:	June 5–August 23, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking high school and undergraduate students with interest in drug abuse research; desire to work with neonatal rodents (i.e., handle, anesthetize, inject, assess withdrawal behaviors, perform surgical techniques). Should have desire to learn new molecular biology techniques (i.e., immunohistochemistry, in situ hybridization, cAM, protein assays). Should have excellent communication (oral and written) and problem-solving skills, ability to learn and understand new information quickly, team player skills, solid background in biological sciences or chemistry, and good computer skills.

The goals of the 2006 Summer Research With NIDA experience are for students to build on the sound laboratory practices (i.e., notebook maintenance, pertinent calculations, and the intricacies of experimental design) and research techniques (i.e., immunohistochemistry, in situ hybridization, cAMP and protein assays) learned as prior Summer Research With NIDA fellowship recipients, and to continue to read, dissect, and analyze scientific journal articles. Specifically, students will be responsible for implanting ALZET® miniosmotic pumps into dams, dosing newborn rat pups with morphine and/or clonidine, assessing opioid withdrawal behaviors in neonatal rats, and moving the c-Fos and tyrosine hydroxylase immunohistochemistry work forward. The summer research experience will culminate with students preparing a PowerPoint presentation, which will be reviewed by members of the Gauda laboratory.

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Investigator:	Desmond J. Smith, M.D., Ph.D.
Institution:	University of California, Los Angeles, School of Medicine, Los Angeles, California
Research Area:	Neurogenomics
Project Title:	Genome-Scale Mapping of Gene Expression Patterns in the Mammalian Brain
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students with strong desire to do research in molecular biology and genomics. An interest in programming is also desirable.

This project involves the use of genomic techniques in combination with the mathematical methods of biomedical imaging to construct atlases of expression for a substantial portion of the genes in the genome. Opportunities exist for basic laboratory work and some training in scientific computing.

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Investigator:	Michael Morgan, Ph.D.
Institution:	Washington State University, Vancouver, Washington
Research Area:	Behavioral Neuroscience
Project Title:	Cellular Mechanisms of Opioid Tolerance
Start Date, Program Length:	May 23, 2006, or later — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students who are able to follow directions, pay attention to detail, and work well in a group. Respect and kindness to the people and rats in the laboratory are requirements.

This laboratory conducts basic neuroscience research that aims to determine the changes in the brain that underlie the development of tolerance to morphine. Although morphine blocks pain well, this analgesia is lost with repeated administration. We use behavioral and pharmacological techniques to determine the contribution of a brain structure called the periaqueductal gray matter to this tolerance. All experiments are conducted on laboratory rats. Students will learn the following skills: handling and care of laboratory animals, behavioral testing procedures, surgical implantation of cannulae into the brain, histological analysis of the brain, and data analysis and presentation. Additional information about the laboratory and recent publications can be found at http://www.vancouver.wsu.edu/fac/morgan/morgan_home.html.

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Investigator:	Howard Gu, Ph.D.
Institution:	Ohio State University, Columbus, Ohio
Research Area:	Mechanisms of Cocaine Addiction
Project Title:	Mechanisms of Cocaine Addiction
Start Date, Program Length:	Flexible — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with a major in biology or chemistry and substantial (at least some) experience in chemistry or biology laboratory work.

Neurotransmitters are compounds released by presynaptic neurons to communicate with other neurons and cells. Neurotransmitter transporters (NTTs) terminate neurotransmission by the reuptake of neurotransmitters from the synaptic cleft and surrounding areas. Dopamine transporter (DAT), serotonin transporter (SERT), and norepinephrine transporter (NET) are high-affinity targets for the psychostimulants cocaine and amphetamines. The transporters are also molecular targets for therapeutic drugs such as Ritalin (methylphenidate), Tofranil (imipramine), Prozac (fluoxetine), Zoloft (Sertraline), Luvox (fluvoxamine), Paxil (paroxetine), and Wellbutrin (bupropion). These drugs are used to treat several neurological and mental disorders, including attention-deficit/hyperactivity disorder, depression, anxiety, autism, obsessive-compulsive disorder, and minimal brain dysfunction. This laboratory focuses on these important transporters and studies their structures and functions, and their roles in drug addiction and mental disorders. Students will learn some basic molecular biology techniques and participate in other research activities.

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Investigator:	Heping Zhang, Ph.D.
Institution:	Yale University, New Haven, Connecticut
Research Area:	Biostatistics, Bioinformatics, Genetic Epidemiology
Project Title:	Statistical Methods in Genetic Studies of Substance Use
Start Date, Program Length:	July 1, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students who major in quantitative or biological sciences, including mathematics, computer science, biology, and statistics.

This laboratory develops flexible classification and regression methods and software and applies them to health-related studies, particularly in the analyses of genetic and genomic data. There are several training opportunities, including pre- and postdoctoral statistical training in mental health, statistical genomics, and statistical methods.

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Investigator:	T. S. Benedict Yen, M.D., Ph.D.
Institution:	Northern California Institute for Research and Education/University of California, San Francisco, San Francisco, California
Research Area:	Hepatitis B and C Viruses
Project Title:	Molecular Biology of Hepatitis B and C Viruses
Start Date, Program Length:	June 15, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students majoring in biology or related subject (e.g., biochemistry, molecular biology) and interested in biomedical research. Previous laboratory experience is essential, even if only in the setting of a course. It is necessary to know sterile techniques and basic laboratory manipulations (e.g., weighing compounds, making solutions, using pH meters).

This project, involving research on hepatitis B virus, looks at the association between a mutant form of hepatitis B virus and liver cancer. The work will involve using polymerase chain reaction and gel electrophoresis to look for these mutants in the blood of patients. Our research on hepatitis C virus involves looking at the role of a cellular protein in the viral life cycle. The work will involve using polymerase chain reactions to generate new plasmids, growing the plasmids, and using restriction digests to characterize these plasmids.

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Investigator:	Yossef Itzhak, Ph.D.
Institution:	University of Miami School of Medicine, Miami, Florida
Research Area:	Behavioral Neuroscience
Project Title:	Effects of Psychostimulants on Adolescent and Adult Wild-Type and Transgenic Mice
Start Date, Program Length:	May 2006 — 8–10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interest in neuroscience and behavioral pharmacology and willing to work in a basic research laboratory with mice.

This research focuses on investigation of the effects of psychostimulant drugs such as cocaine, methamphetamine, and MDMA (ecstasy) on the behavior of wild-type ("normal") mice and transgenic mice that are deficient in a specific gene that encodes for the expression of neuronal nitric oxide synthase (nNOS). We are investigating the influence of this gene on the behavioral and neurochemical effects elicited by psychostimulant drugs in adolescent and adult mice. We are interested in understanding how the specific gene (nNOS) and age-dependent differences contribute to the effects of drugs of abuse. It is essential that the candidate is willing to handle and work with live animals (mice).

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Investigator:	Paul Vezina, Ph.D.
Institution:	University of Chicago, Chicago, Illinois
Research Area:	Behavioral Neuroscience
Project Title:	Consequences of Exposure to Stimulant Drugs
Start Date, Program Length:	June 15, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interest or major in the life sciences.

This project offers opportunities to gain experience in drug abuse research in a multidisciplinary setting at the University of Chicago. Up to four students will have the opportunity to work with graduate students, postdoctoral fellows, and principal investigators in laboratories studying several different aspects of drug abuse. Topics include the study of the subjective effects of drugs in humans; assessment of the neurobiological, biochemical, and pharmacological effects of drugs in animals; development and use of mouse genetic models to study drug effects; and electrophysiological and molecular biological characterization of the effects of drugs on the brain. Research will include hands-on training in different laboratory techniques, data collection and analysis, and library research. Students will attend and have opportunity to participate in laboratory meetings and joint meetings of the different laboratories where research findings will be presented. Students will have opportunity to participate in the activities of other Summer Research Programs at The University of Chicago.

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Investigator:	Geoffrey Schoenbaum, Ph.D.
Institution:	University of Maryland, School of Medicine, Baltimore, Maryland
Research Area:	Behavioral Neurophysiology
Project Title:	Lasting Effects of Cocaine on Corticolimbic Processing
Start Date, Program Length:	May 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interest in neuroscience, the brain, or drug addiction/learning/behavior. Student should be prepared for significant research in the laboratory.

This program will involve assisting a graduate or postdoctoral student in conducting basic science experiments to look at how exposure to an addictive drug (cocaine) alters normal mechanisms of learning and decisionmaking that depend on corticolimbic structures. This question is of interest because cocaine and other addictive drugs cause long-lasting changes in structure in these circuits, which may have fundamental effects on the ability to control behavior, thereby causing the compulsive drug-seeking that characterizes addiction. The experiments will use rats as a model and will involve behavioral, neurosurgical, and neurophysiological techniques, which enable monitoring of the activity of individual neurons processing information in the brains of awake behaving animals. The goal of this work is to identify information processing abnormalities that occur as the result of cocaine exposure. Subsequent postmortem work may also be conducted in an attempt to correlate information processing changes with the structural changes caused by cocaine in each animal.

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Investigator:	Jeffrey W. Grimm, Ph.D.
Institution:	Western Washington University, Bellingham, Washington
Research Area:	Relapse
Project Title:	Basic Research on the Neurobiology of Addiction
Start Date, Program Length:	June 7, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking high school students.

This project involves basic laboratory work in behavioral neuroscience. It will investigate the neurobiology of relapse using an animal model. Students will work with a graduate student mentor and with the principal investigator. Basic classroom instruction will be integrated with hands-on experience in the laboratory. Students will help with ongoing studies with rats on relapse and will additionally run a study designed as part of the class. Other skills to be learned include basic site-directed drug microinjection and brain slicing, staining, and microscope use (with digital imaging).

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Investigator:	John W. Olney, M.D.
Institution:	Washington University, St. Louis, Missouri
Research Area:	Cell Death, Neurotoxicity, Development
Project Title:	Developmental Brain Damage by Drugs of Abuse
Start Date, Program Length:	Early June 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking four high school students willing to work with live animals. Work involves cutting and processing brain tissue to look at cells under a microscope. These skills will be taught to the students, so no previous experience is needed in this area.

Students will be involved in laboratory-based rodent experiments on the behavioral, neurochemical, and physiological consequences of exposure to psychostimulants and opioids. Behavioral approaches include measure of drug reinforcement, anxiety behavior, nociception and pain, and learning and memory. Opportunities will be available for the evaluation of neurochemical, hormone, and protein changes as a consequence of drug exposure using a wide variety of techniques including HPLC, ELISA, radioimmunoassay, and Western blot. Laboratory work will be supplemented by a weekly journal club that discusses recent research findings in the field. Students will participate in a weekly career development program that features discussions on research ethics, careers in science, graduate education, data presentation, and writing skills. Regular social opportunities will also be provided for students.

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Investigator:	Gene D. Morse, Pharm. D.
Institution:	University at Buffalo, Buffalo, New York
Research Area:	HIV/AIDS
Project Title:	TDM and Drug Interactions in HIV-Infected Substance Abusers
Start Date, Program Length:	June 5, 2006 — 8 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with science major; should be independent thinkers, punctual, and enthusiastic.

This research deals with an innovative approach to the rapid assessment of complex drug interactions between protease inhibitors and nonnucleoside reverse transcriptase inhibitors (NNRTIs) and commonly prescribed medications, including methadone, ethinyl estradiol, fluconazole, pravastatin, and fluoxetine in HIV-infected, substance abusers. The proposed methodology employs a Therapeutic Drug Monitoring (TDM) program that will facilitate rapid determination of ART in subjects receiving multiple interacting medications.

Specific aims are to—

- Implement a TDM program that will establish a mechanism to investigate protease inhibitor (PI) and NNRTI pharmacokinetics in HIV-infected substance abusers receiving ART, and determine drug exposure parameters (Crim, AUC) and inhibitory quotients (IQs).
- Determine the pharmacokinetics of selected interacting medications (methadone, ethinyl estradiol, fluconazole, pravastatin, fluoxetine) in HIV-infected substance abusers receiving ART.
- Determine in vitro and ex vivo total and unbound plasma concentrations of protease inhibitors and NNRTIs in HIV-infected substance abusers utilizing novel analytical approaches including HPLC, LC-MS-MS, and capillary electrophoresis.
- Develop and validate a capillary electrophoresis assay capable of enantiomeric separation to enhance the pharmacokinetic analysis of interaction medications
- Examine pharmacogenetic factors that may identify individuals at greater risk for insufficient or excessive systemic drug exposure while receiving complex regimens with multiple drug-drug interactions

The proposed TDM-drug-drug interaction program integrates a comprehensive antiretroviral clinical pharmacology research group, an HPLC/LC-MWS analytical facility, a pharmacometrics laboratory, a Web-based TDM enrollment infrastructure, and four HIV clinical centers caring for substance abusers. Innovative pharmacokinetic and pharmacodynamic modeling approaches to assess complex drug-drug interaction analyses of PI and NNRTIs from HIV-infected substance abusers and nonsubstance abusers will be conducted at the central pharmacology laboratory. These studies will provide insight into some of the clinical interactions that face clinicians and patients today and will also identify priority drug interactions that require more traditional pharmacokinetic trials to identify specific mechanisms of interaction.

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Investigator:	Jay P. McLaughlin, Ph.D.
Institution:	Northeastern University, Boston, Massachusetts
Research Area:	Neurobiology of Stress, Depression, and Addiction
Project Title:	Neurobiological Modulation of Reward by Stress
Start Date, Program Length:	May 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students with interest in basic laboratory and behavioral neuroscience. Preferably, students should have some neuroscience training (not required).

Dr. McLaughlin's research is on the neurological mechanisms underlying the psychological disorders of stress, depression, and drug addiction. His group examines the interactions of stress-induced endogenous opioids (e.g., endorphins and dynorphins) and growth factors (e.g., BDNF) with reward pathways and the resultant behavioral consequences. As stress may predispose subjects to both behavioral depression and increased drug use, further understanding of the neurobiological mechanisms mediating the response to stress and the role of the endogenous opioid system are likely to provide new insights into the problems of stress adaptation.

Dr. McLaughlin's ongoing research utilizes biochemical, pharmacological, neuroanatomical, and behavioral methods. Behavioral studies characterize the reactions of stress-exposed mice to both environmental stimuli and abused drug (e.g., morphine, cocaine) in learning and conditioned-place preference tasks. Neuroanatomical studies use immunocytochemical staining techniques to visualize the brain cells mediating these behaviors. Pharmacological methods are used to identify and manipulate the neurotransmitters mediating the stress-induced behavioral responses, and molecular biochemical methods are utilized to produce tools such as phosphospecific receptor antibodies to further examine the molecular determinates of the stress-induced behaviors. The goal of these studies is to elucidate the combined mechanism of these interactions, thereby identifying new therapeutic interventions for stress, depression, and drug abuse.

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Investigator:	Igor Grant, M.D.
Institution:	University of California-San Diego, San Diego, California
Research Area:	Neuropsychiatry and NeuroAIDS
Project Title:	NeuroAIDS: Effects of Methamphetamine and HCV
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interest in the consequences of HIV infection and methamphetamine use on the structure and function of the central nervous system. Students should have some coursework (or practical experience) in fundamental experimental methods and statistics.

The aim of this program is to clarify the mechanisms of methamphetamine (METH) potentiation of HIV neural injury. Given the prevalence of coinfection with hepatitis C (HCV) and the growing awareness of HCV as a cofactor in neural injury, the program will examine the separate and combined effects of HIV, METH, and HCV. Scientific hypotheses for the program are based on an overall model proposing that HIV, METH, and HCV can act both directly and indirectly through immune cell activation that alters the balance between neuroprotective and neurotoxic mediators, leading to injury of specific neuronal subpopulations in neocortex and nigrostriatum.

The program utilizes a multifaceted and translational approach through six projects (Neurocognitive, Neuromotor, fMRI, Carbon-13 Spectroscopy, Biomarkers, and Neurobiology). Innovative directions include deployment of neurocognitive, neuromotor, and neuroimaging methods hypothesized to be more sensitive and specific in detecting underlying mechanisms of injury from HIV, METH, and HCV and linking these to in vivo and in vitro molecular studies. Through coordinated multidisciplinary research addressing the neurotoxic effects of HIV, METH, and HCV at different levels of analysis, we hope to achieve a more precise understanding of the nature and mechanisms of neural injury attributable to these factors.

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Investigator:	Juan Lama, Ph.D.
Institution:	La Jolla Institute, San Diego, California
Research Area:	HIV Pathogenesis
Project Title:	Molecular Basis of HIV Pathogenesis
Start Date, Program Length:	June 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with majors in biology, bioengineering, biochemistry, or genetics. Students should have previous experience in molecular biology laboratory techniques.

This project examines the molecular bases of HIV disease progression. The study looks at a cohort of HIV-infected patients who have remained free of symptoms after more than 15 years of infection in the absence of antiretroviral therapy. The study hypothesizes that these individuals may carry genes that make them resistant to HIV infection.

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Investigator:	Gary Rudnick, Ph.D.
Institution:	Yale University, New Haven, Connecticut
Research Area:	Neurotransmitter Transport
Project Title:	Neurotransmitter Transport
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students pursuing studies in biochemistry, physiology, or related fields.

This research concerns the proteins involved in neurotransmitter recycling responsible for the reuptake of serotonin and other biogenic amines. The study is interested in how these proteins operate on a molecular level to couple ion gradients to substrate transport. The transporters are responsible for the reuptake process, which terminates the action of serotonin, norepinephrine, and dopamine released into the synaptic cleft. They are the molecular targets for cocaine, antidepressant drugs such as imipramine, and amphetamine and its analogs, such as MDMA (ecstasy). Current efforts in the laboratory include identification of residues in the serotonin transporter that are involved in substrate and cocaine binding. The study also investigates the role of hydrophilic loop regions in this transporter to understand their role in transport and their topological orientation. Other projects involve coupling of ion gradients to catecholamine transport and the sorting of transporters to specific target plasma membrane domains.

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Investigator:	Valeri Farmer-Dougan, Ph.D.
Institution:	Illinois State University, Normal, Illinois
Research Area:	Behavioral Neuroscience
Project Title:	Effects of DA D1 and D2 Agonists on Reward Sensitivity
Start Date, Program Length:	May 22, 2006 — 8 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students willing to work with live rats. Students will have the opportunity to assist with data analysis; experience with Excel or graphics programs such as Sigma Plot is a bonus. Psychology, biology, and related majors would be excellent candidates.

Students will participate in this study examining changes in reward sensitivity when rats are exposed to dopamine D1 and D2 receptors to control sensitivity to changes in reward in two ways. First, changes in phasic dopamine may signal to the organism that the situation has changed. Second, maintenance of tonic dopamine may maintain an ongoing operant response. This is important when examining changes in behavior for individuals with addictions to dopaminergic drugs or disorders such as schizophrenia. It may be that due to changes in dopamine regulation, these individuals are less sensitive to their reward surroundings. Our study examines how changes in response topography brought about by flooding the DA, D1, or D2 receptors may affect how well rats attend to reinforcement contingencies. The study relates this to how dopamine D1 and D2 receptors regulate dopamine in the brain.

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Investigator:	Jai Bei Wang, M.D., Ph.D.
Institution:	University of Maryland School of Pharmacy, College Park, Maryland
Research Area:	Opioid Addiction
Project Title:	Opioid Receptor Phosphorylation in Opioid Tolerance and Dependence
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students with interest/major in biomedical research. Declared majors include the biological sciences (such as biology, biochemistry, molecular biology, psychology, and neuroscience).

This molecular pharmacology laboratory supports research centered on the neuronal mechanisms underlying the effects of opioids and CNS stimulants. The study focuses on questions concerning the role of opioid receptor phosphorylation in mediating the signal transduction and behavioral effects of morphine and other abused drugs. Students will receive training and mentorship in how to conduct basic research, especially in cellular, molecular, and behavioral aspects of drug abuse research; receive education in the fundamental principles behind the design of experiments; and perform their own experimental research project. Students will be introduced to the multidisciplinary nature of the research through interactions with other members of the principal investigator's laboratory and within the department. Students will attend weekly group meetings and journal clubs dealing with a variety of research topics and methodologies in basic and clinical aspects of health issues, including drug abuse, and will have the opportunity to learn to be critical and creative in scientific research.

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Investigator:	Adrian S. Dobs, M.D.
Institution:	Johns Hopkins School of Medicine, Baltimore, Maryland
Research Area:	Endocrinology, Addiction, HIV/AIDS
Project Title:	Cognitive Consequences of Endocrine Dysfunction in Drug Users
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students who are biology/premedicine majors. Students should have interest in psychology, clinical research (direct patient contact), endocrinology, addiction, and HIV/AIDS. Junior- or senior-level students preferred. Some knowledge of Excel and statistics a plus.

This study involves measuring cognitive function with a battery of neuropsychological tests in men and women who are addicted to illicit drugs. The hypothalamic-pituitary-gonadal (HPG) axis exhibits dysfunction in men and women who use illicit drugs. This project hypothesizes that this endocrine pathology contributes to impaired cognitive performance in affected individuals. This study is also designed to consider the confounding effects of HIV/AIDS on endocrine pathology and impaired cognition. Students involved in the project will gain experience in assessing cognitive function, obtaining medical histories, and screening from depression.

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Investigator:	Madhavan P.N. Nair, Ph.D.
Institution:	University at Buffalo, Buffalo, New York
Research Area:	Drugs of Abuse
Project Title:	Role of Drugs of Abuse in HIV Susceptibility and Disease Progression
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking high school and undergraduate students meeting the following criteria: High school students must be honor students with great appreciation of research in the medical field. Undergraduate candidates must be interested in biological sciences and medical research. Must have basic laboratory skills and familiarity with basic cell culture, dilution concepts, pipeting devices, and laboratory safety regulations.

The overall research interests of this laboratory are focused on investigating the role of drugs of abuse such as opioids, cocaine, heroin, cannabinoids, and methamphetamine in the development of neuropathogenesis of HIV-1.

Specific projects that are currently underway include—

- Understanding the role of chemokines and their receptors as potential immunomodulating agents in HIV disease progression
- Investigating the role of DC-SIGN, an alternate HIV-1 coreceptor that is present on monocyte-derived mature and immature dendritic cells in HIV-1 neuropathogenesis and HIV-1 disease progression
- Effects of drugs of abuse on HIV-1 infectivity in monocytes, microglia, astrocytes, and monocyte-derived dendritic cells
- Effects of drugs of abuse on transmigration of HIV-1 infected monocytes or dendritic cells across the blood–brain barrier

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Investigator:	Wen-Zhe Ho, M.D.
Institution:	The Children's Hospital of Philadelphia, Philadelphia, Pennsylvania
Research Area:	Drug Abuse, Immunology, and HIV/HCV
Project Title:	Drug Abuse, Substance P and HIV
Start Date, Program Length:	July 15, 2006 — 8 weeks
Housing Available:	No
Student Attributes:	Seeking undergraduate students who are majoring in the life sciences.

Dr. Wen-Zhe Ho's research focuses predominantly on the understanding of mechanisms of interaction between drug abuse and HIV and HCV. His activities provide clues toward the development of therapeutic strategies for HIV- and HCV-infected drug abusers. Specifically, students will engage in research on a study that looks at the role of opioids and substance p on the immune system and how this influences HIV growth and neuropathogenesis. As morphine influences substance p generation in monocytes and macrophages, this study will focus on how this is related to expression of HIV receptors and replication and expression and production of chemokines, etc.

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Investigator:	Glen R. Hanson, Ph.D.; Mario Alburges, Ph.D.
Institution:	University of Utah, Salt Lake City, Utah
Research Area:	Neurotoxicology
Project Title:	Neurotensin and Methamphetamine Effects
Start Date, Program Length:	June 23, 2006 — 10 weeks
Housing Available:	Yes
Student Attributes:	Seeking undergraduate students interested in learning about the biochemical mechanisms and neurotoxicity of drug of abuse on brain neurochemistry.

Student will be placed in the neurochemistry laboratory of the Pharmacology and Toxicology Department at the College of Pharmacy, University of Utah. The student will be trained in using techniques such as microdialysis, HPLC, and radioimmunoanalysis to study mechanisms of action of CNS stimulants (methamphetamine, cocaine, nicotine). The student will attend laboratory meetings and seminars and will take a radiation safety training course.

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Investigator:	Lance R. McMahon, Ph.D.
Institution:	University of Texas Health Science Center, San Antonio, Texas
Research Area:	Cannabinoid Pharmacology
Project Title:	Mechanisms Underlying Behavioral Effects of Cannabinoids
Start Date, Program Length:	May 23–June 7, 2006 — 10 weeks
Housing Available:	Possibly
Student Attributes:	Seeking undergraduate student with interest in behavior.

Cannabis use continues at a high rate in the United States, and it is now well established that chronic use of cannabis results in dependence, defined by symptoms (anxiety) and signs (sleep disturbances) upon discontinuation of use. This research program is designed to better understand the neuropharmacology of cannabis dependence and withdrawal and to identify therapeutics that can alleviate withdrawal and promote abstinence. To achieve these aims, operant and other behavioral procedures are used to examine the effects of cannabinoids in rodents and nonhuman primates.

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Investigator:	Brian M. Cox, Ph.D.
Institution:	Uniformed Services University, Bethesda, Maryland
Research Area:	Opiate Drugs and Opioid Peptides
Project Title:	Opiate Drugs, Endogenous Opioids, and Neural Injury
Start Date, Program Length:	June 1, 2006 — 10 weeks
Housing Available:	No
Student Attributes:	Seeking junior/sophomore undergraduate students majoring in a biological science or chemistry, with interest in exploring a laboratory research experience, while considering seeking admission to a graduate program in pharmacology or another biomedical science.

In recent years, the Department of Pharmacology at Uniformed Services University has sponsored a 10-week summer research internship for undergraduate students majoring in a discipline relevant to pharmacology and the basic biomedical sciences, with funding from various sources. A student supported by the NIDA Summer Research program will be integrated into the overall summer program in 2006, joining five other students, with assignment to the Cox Lab to participate in a NIDA-funded research project.

Opiate drugs are indispensable therapeutic agents in the treatment of severe and chronic pain. They act through receptors normally utilized by endogenous opioid peptides, including enkephalins, B-endorphin, dynorphin, and the recently discovered related peptide, nociceptin/orphanin FQ (abbreviated N/OFQ). Endogenous opioids are important neuronal regulators in many parts of the central and peripheral nervous systems; they also influence the immune and endocrine systems. Opioid-regulated neurons show very marked adaptations to chronic opiate drug exposure, resulting in the development of tolerance, physical dependence, and addiction. Opioid peptides, particularly dynorphin and N/OFQ, are also implicated in the responses of the nervous system to injuries of various kinds, in the etiology of some chronic pain conditions, and potentially in the adaptive processes associated with drug addiction.

Current projects in the laboratory include studies of the roles of these peptides, their specific receptors, and the transduction systems they activate in the response of neurons and glial cells to stress, injury, and chronic drug exposure. In vivo studies have shown significantly elevated expression on N/OFQ in brain in regions of mechanical or chemical injury. Increased N/OFQ expression appears to be associated with neurotoxicity.

Students entering Dr. Cox's lab will participate in studies on the regulation of expression of N/OFQ and its potential role in neurotoxicity induced by environmental toxins and drugs of abuse. A colony of mice with genetic deletion of the N/OFQ gene is being used to study the functions of this peptide. Students will gain experience in one or more of the following techniques: tissue culture; measures of simple animal behaviors; brain dissection; assays for specific mRNAs (using RT-PCR); radioimmunoassay (RIA); mRNA and peptide localization by in situ hybridization and immunohistochemistry; characterization of peptide and precursors by HPLC or electrophoresis; Western blots; and mass spectrometry.

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